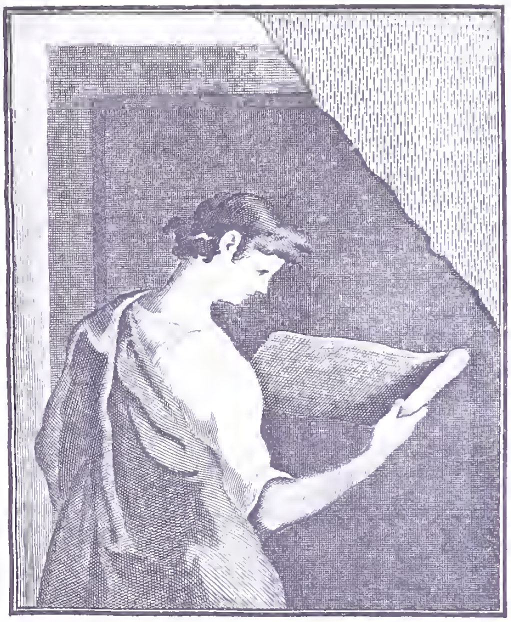

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Yours very truly
Aston Webb

SIR ASTON WEBB, R.A., F.S.A.

PRESIDENT 1902–1904,
ROYAL GOLD MEDALLIST 1905.

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East, Alfred, A.R.A. [*H.A.*].
Farrow, F. R. [*F.*].
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Gibson, James S. [*F.*].
Gourlay, Professor Charles [*A.*].
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Solomon, Solomon J., A.R.A. [*H.A.*].
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Waterhouse, Paul, M.A. [*F.*].
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Wilkinson, R. Stark [*A.*].
Wills, Herbert W. [*A.*].
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Windley, Rev. H. C., M.A.
Wood, W. H.
Woodthorpe, Edmund, M.A. [*F.*].
Woodward, Wm. [*F.*].
Worthington, Percy S., M.A. [*A.*].

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WALL (J. C.)—Shrines of British Saints. 8o. Lond. 1904

WINN (J.)—Notes on Steel Concrete Construction. 8o. Chatham 1903

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JOURNAL
OF
THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

Seventieth Session—1904-1905.

THE OPENING ADDRESS. Delivered by the President, Mr. John Belcher, A.R.A., at the First General Meeting, Monday, 7th November 1904.

Colleagues, Ladies and Gentlemen,—

IT has been the custom of the Institute, as I daresay you all know, for the President, in opening the new Session with an address, to pass in review the important events of the last Session, and also to say a few words upon the existing condition of our national architecture as a whole.

Before entering upon my task I desire to thank my colleagues for the honour they have done me in electing me as President—an honour which, coming as it does from my brother architects, I am sensible is of peculiar distinction. It is not without anxiety that I enter upon my duties, for, besides the responsibilities attached to the office, I know how difficult it will be for me to follow a President of such exceptional qualifications and ability as my predecessor, Mr. Aston Webb.

We all recognise and appreciate much that Mr. Webb has achieved during his term of office, but his colleagues on the Council best know how greatly his work has been to the advantage of the Institute. His artistic sympathies, his genial manner and ready tact have secured for him the widest popularity.

The success of the President's "At Homes," which he inaugurated, has been most marked. They have afforded opportunities for social intercourse and the exchange of ideas, and have been occasions on which the experience of those of riper years has been readily placed at the disposal of younger brethren. The drawings and sketches also, which have been exhibited, proved both attractive and helpful. I propose, therefore, by your favour, to continue these pleasant gatherings, from which "My Lady Nicotine" will assuredly not be banished.

Turning to matters of more general architectural interest, the past year has been distinguished by events of unusual importance. The laying of the foundation-stone of the new Cathedral of Liverpool—probably the last Gothic cathedral to be built in our days—was a unique occasion, and its significance was recognised by His Majesty the King in performing the ceremony. The greatness of the work and the importance of the city, combined with the desire of the citizens that the sign of their faith should dominate this centre of commercial enterprise, mark it as an event not only in architecture but in our national history, and one which should materially affect the lives of the toiling masses. We shall watch with interest every stage and every feature in the growth and development of this important building. In the genius of Mr. G. G. Scott, who has inherited the traditions of a talented family, and in the supervising care of that most learned and profound exponent of Gothic methods, Mr. Bodley, R.A., we have ample assurance and guarantee that the beauty and excellence of the work will be complete.

Another great undertaking which has been begun is that of the Memorial to our late Queen, as designed by Mr. Aston Webb. Already the laying out of the new road in the Mall, with its avenues of trees and approaches to the Palace, is complete, and has been greeted with universal approval and commendation. The large piers which mark the points of divergence of the several roads and avenues show how effectively these are set out. Not only are the existing approaches—with Constitution Hill—brought into unity, but they are so contrived as to open up new vistas. At one point, for instance, a fine open turfed way reaching across the Green Park will be viewed through elaborate iron gates and piers with fine effect. Mr. Webb has certainly made the most of his opportunities, and when all his design, including the arcading, is completed we may anticipate a result of which we shall be proud. The present unfinished aspect of the work, from which the main architectural features are lacking, can give the public but little idea of the beauty and harmony of Mr. Webb's entire scheme. In this connection I may just say that the very commonplace electric light standards, to which so much exception has been taken, are only temporary, and will, I hope, soon be replaced by others specially designed by Mr. Webb himself.

The Indian Memorial to the Queen has also been taken in hand. Owing to the nature of the site chosen the foundations for the superstructure designed by Sir William Emerson have presented many difficulties, which, however, have been overcome by methods of considerable ingenuity. We shall look forward to having the particulars and description of this interesting work before us in due course.

The contemplated extension to the British Museum—so long needed—has been entrusted to Mr. J. J. Burnet, whose excellent Greek work in Glasgow fully entitles him to this distinction.

Amongst the events of the year must be recorded the bestowal of the honour of Knighthood upon our colleague, Sir Henry Tanner, whom we sincerely congratulate on so well-deserved a reward for his eminent services. A proof surely, this, of the awakening interest and increasing regard which our beloved art is beginning to inspire in the minds of those in authority.

Before passing on I desire to remind you of the great International Congress of 1906, which, as you are aware, is to take place in this city. The necessary preparation and organisation for this important event are already well in hand, and will continue to occupy the attention of your Council.

I have the honour formally to announce that the King has graciously consented to be the Patron, and the Prince of Wales the Honorary President of the Congress. The occasion will be in the highest degree interesting and important—fruitful, too, we may well hope, in opportunities not only for advancing the true interests of our art, but also for drawing public attention to its value and importance as a factor in our national life and education.

It is to this end that our Institute should always be directing its efforts. We are something more than a Trade Union—we are a corporation whose members are called to rise above the differences which so often distract the artist, and to act harmoniously as from one centre, to the end that Architecture may flourish as a fine art.

The Institute's growing influence brings, of course, distinction to its members, which distinction, however, must be honourably earned—won, in fact, by force of merit rather than demanded as a right.

The increase in our numbers gives proof of vitality and vigour, but this involves greater responsibility, and an obligation to let the audacity of youth give place to the growing caution and dignity of maturer years and riper experience.

We may, perhaps, differ among ourselves as to the true line of advance, but we are all, I believe, actuated by the same loyal desire, and all ambitious to see the Institute firmly established in the honourable position it has earned. We must see to it, then, that the foundation is secure before we attempt to add to the superstructure. We must, in other words, know something of our limitations as well as of our influence and power, bearing in mind the old lesson of the nut and the nutcrackers—if the crackers are not strong enough to crack the nut, the nut will assuredly be hard enough to break the crackers.

The purpose and work of the Institute are not limited to the great metropolitan interests. Unlike the Allied Societies which are represented on its Council, and which are mainly concerned with local and personal matters, the Institute as a corporate body has a duty towards the whole profession, and its Council, in weighing the many difficult problems that come before them for solution, have to remember this greater responsibility, this more extended obligation.

One such subject before the Institute at the present time is the question of Registration. Registration is apt to be somewhat hastily regarded as a panacea for all ills, so that the very sound of it breathes comfort, like "that blessed word Mesopotamia" in the story of the old lady and the sermon. The simplicity, however, of the operation or process of registration must not be taken for granted. A clear definition of its practical working and effect will, no doubt, be elucidated in time; but as this is the task upon which the Committee specially appointed by the General Body are now engaged, I feel it would be better for us discreetly to keep silence until they have reported upon it. Moreover, as there is considerable diversity of opinion, it will be well to hear both sides before coming to a decision.

There is, however, one matter, affecting both ourselves and the Allied Societies, upon which we are all agreed—viz., the special education and equipment necessary for an architect. Some carefully-devised scheme of training is in reality that proper foundation to which I have alluded, and must have precedence of all other claims upon our time and attention.

I congratulate the Institute that during the past Session an efficient "Board of Architectural Education" was established. This scheme was brought before you by my predecessor, under whose able guidance it has come to fruition, and I am glad to inform you that Mr. Webb will continue to act as Chairman of the Board. The distinguished men who are associated with him are in themselves a sufficient guarantee that the result of their labours will be far-reaching and beneficial. Several meetings of the Board have already been held, and the business in hand is far advanced. Their scheme will shortly be before you, and, I hope, in active operation before long.

Another cause for congratulation is the growing interest of the public in architecture—an interest evidenced in a variety of ways. It is obvious that side by side with a more systematic training of the architect, some attempt should be made to educate the public. At the very least we might set before them fundamental principles and elementary axioms, that they may know what to appreciate and what to avoid. This might be partially accomplished by lectures in the large cities and towns, under the patronage of the local authorities; also by the distribution of short papers or pamphlets on the subject for the use of schools, art teachers, and others.

Unfortunately, at our great centres of learning, which should have given a lead in this matter, the study of architecture has been made subservient to archæology; it has been a handmaid to other interests rather than a queen in its own right. The result is only what might have been expected—viz., that architectural work of all sorts, good, bad, and indifferent, has been judged and appreciated (or the reverse) not upon its merits but according to its antiquity. Archæology has thus been an unconscious cause of the decay of architecture as a living art.

But, it may be asked, are not the technical schools educating our people in a knowledge of architecture? Scarcely. They impart a knowledge of the methods and science of building construction, but what is needed by the general public is not so much a technical knowledge as a discriminating taste moulded and set upon elementary principles, a discrimination which will enable them to approve what is excellent and reject what is inferior.

In the eighteenth century the education of a gentleman was not considered complete unless he had acquired some knowledge of the rudiments of architecture, and a refined taste in the appreciation of its beauties. Too often, it is true, the dilettante thus inspired attempted to express his ideas without the aid, or with only the partial aid of the professional architect, and fell into the many errors and mistakes into which a little learning is always so apt to betray a man. Such rash experiments are to be deplored, but the interest in and appreciation of art which prompted them is one which we might well seek to revive.

In this good cause I believe the power of the Press may be reckoned on. In an admirable and interesting article in *The Times* of 3rd September last, from which I should like to quote more fully, the writer, after stating that every Town and County Council is making effort to establish some kind of technical education among the people, adds: "The want of such an education in England, and of a rudimentary knowledge of design, has been matter of complaint during many generations, but until quite lately the complaints have fallen upon deaf ears." Again, after drawing attention to the general neglect of decorative artists in the past, who had to abandon their art because there was no demand for it, he writes, "Things have changed a good deal in the last forty years, and there is now, at least, no want of schools of art or of the encouragement that is given by an enthusiastic, if rather uninformed, public opinion." It is this uninformed public opinion which is the difficulty and the danger, and I hope a committee of the Institute may be appointed to consider the subject, and to suggest something that may be done by way of remedy.

In these days, supply (of a sort) follows hot-footed upon the heels of demand, and the quickened public interest in art was promptly met by the abominable affectation (I should like to use a stronger phrase) of what is known as "l'art nouveau." A new art forsooth! A pernicious trick easily acquired and applied alike to buildings or jewelry, furniture or dress; no matter what the nature of the material, whether iron or wood, stone or glass, all alike twisted to curves representing the final stages of vegetable decay and animal decrepitude, in defiance of all true principles of construction and beauty. In *The Times* article I have quoted from, an incident is related of an intelligent French workman who, passing through a museum with an Englishman, after contemplating a Riesever cabinet, turned to an "art nouveau" chair (alas that it should have been there!), and delivered his soul as follows: "In the old days they had ideas; but as for this chair—well, it is the art of fools suited to an age of fools."

In correcting such false ideals as "l'art nouveau" holds up to the public admiration, the Press can render powerful aid, but we must do our part also by supplying principles to direct and mould the taste of the people in matters architectural.

Fortunately, the County Councils and other public bodies acknowledge the advantage to the community of these artistic influences, and are alive to their importance in trade and commerce, but have they ever yet regarded them from the point of view of the public health and morals? If legislation is necessary on sanitary matters that the public may be protected from insidious poisons conveyed through the senses of smell and taste and touch, may it not be equally important to protect the sight? Environment insensibly influences the development of all forms of life, and it cannot be doubted that the squalid conditions, horrid forms, inharmonious colours, and injurious sights amongst which such a large proportion of our urban population spend their lives, contribute their quota to the sum total of degenerate moral tendencies of which recurring acts of crime are the inevitable outcome.

Even the untrained have sensibilities to be shocked and blunted, and if the effect of a gloomy and monotonous environment be bad, what shall we say or think about the cumulative moral effect of those wildernesses of mean streets and horrid buildings by which our great cities are disfigured? There must be no concession to what is bad or even mean in architecture if a healthy and manly condition of the people is to be maintained. This aspect of the functions of good architecture should be considered by the authorities who watch over the needs of the community.

And may it not be that many who do not live in mean streets are yet suffering, perhaps unconsciously, from the conditions by which they are surrounded in the public thoroughfares, their senses assailed by a multitude of petty annoyances amounting in the aggregate to a heavy burden from which they would fain escape?

It is a well-known fact, for instance, that an ill-designed building looked at suddenly will cause an involuntary shudder in a man with a trained eye, while certain bad forms as well as bad smells will produce a feeling of actual nausea.

Any and every cultivation of the senses, in opening up hitherto unknown avenues of delight, brings with it also increased discomfort, for it reveals defects of which we were formerly unconscious. All forms of knowledge have this or a similar drawback. Rudyard Kipling puts it from the moral side in a very telling form when he makes our friend Tommy Atkins sing the praises of some place he had discovered (Was it Mandalay? At any rate it was "east of Suez"), "where there ain't no bloomin' ten commandments," or words to that effect.

But seeing that we have our ten commandments, or our canons of art, as the case may be, our moral principles and our artistic tastes, every violation of which brings its fore-ordained penalty, surely we may look to the authorities to defend us from all the hideous sights and sounds and smells which force themselves upon us in our public thoroughfares, whether urban or suburban.

The object which business men have in view in choosing or designing or rebuilding the frontage of their premises is to arrest the attention of the passer-by. To catch the eye—that is everything. They succeed sometimes, alas! too well by what is practically a severe shock to the nervous system of a man of taste. The buildings they erect are marked by such a vicious extravagance in material and so-called ornament, and display such an eccentricity of forms as will not only effectually catch the eye of the passing wayfarer, but will certainly also "land him in the interior"—if not in a physical, in a metaphysical sense.

The coarseness and vulgarity of these methods need not be wholly attributed to architectural design—though certainly once the author of a work of this class, when remonstrated with, did boast that he was a "commercial architect," and that his clients wanted "the most show for their money." This advertising mania is the cause of much which we deplore in our street buildings. If the law can restrain street cries and noises because they affect the nervous system, surely it may well undertake to control the blatant architectural efforts which may truly be said to "cry aloud and shout" in our public ways.

Some effort has been made to control advertisement signs, those modern eyesores which, not content with disfiguring our good buildings and important places, have also intruded themselves upon the beauty and repose of the rural landscape. Heavy taxation is too mild a penalty for these, especially when they blink.

Then, again, the increased height of buildings contributes largely to that atmosphere of gloom which pervades some of our streets. I am not objecting to lofty buildings on special sites or where the road is wide enough, nor are architects to blame if they show a willingness to add as many stories as are required. The responsibility rests with the ground landlords, who insist upon raising the ground rents whenever the opportunity occurs, so that additional stories must be built to meet the increased demand. Owners who are privileged to possess land in important areas should be under special control. If certain well defined rules were laid down applicable to all such places and sites, they would serve for the guidance of those who purchase property or obtain leases in those neighbourhoods, and freeholders would thus be restrained from demanding excessive ground rents.

My predecessor in office strongly urged the need of some authority to whom schemes of public improvements might be submitted, not necessarily for sanction but for consultation and advice—a suggestion which Lord Windsor was good enough to endorse, and has since sought to get adopted.

This is a great advance, but I should like to press the matter still further. Consultation and advice may be sufficient in many cases, but there are others where the First Commissioner should have power to decide and determine. Artistic needs must be insisted upon, more particularly where considerations of finance are likely to exercise an undue if not tyrannical sway.

Quite recently, when some important improvements were suggested in the Strand frontage of the new street, the members of the County Council appointed to meet the artists belonged to the Finance Committee of the Council, and, as was to be expected, showed but little sympathy with artistic ideals. Yet artistic treatment has a financial value of its own, as owners of property are beginning to find out—for where the requirements of art are listened to, property is more eagerly sought after, and its value correspondingly enhanced.

Not long ago the *Globe* newspaper drew attention to this subject in a short article, *à propos* of a paragraph in Sir Arthur Conan Doyle's address to the Incorporated Society of Authors. Sir Arthur, while recognising the desirability, even the necessity, of a strain of artistic blood in the body corporate of the London County Council, did not seem very sanguine, for he calculated it would take a man with the talent of Michael Angelo, the despotic power of Napoleon I., and the all-round energy of the Kaiser Wilhelm to make this city of mean streets and of the commonplace to be what it should be—a fitting centre of the greatest empire that the world has ever seen.

No doubt the qualities here so tersely epitomised would prove advantageous, but how much might be accomplished in this direction if only the First Commissioner of Works, acting as a Minister of Fine Art with the aid of an Advisory Committee, possessed the necessary despotic power to see the right proposals adopted.

This is above all imperative in the treatment of our public places, in the formation of new thoroughfares, and in dealing with spaces and buildings around our public institutions.

Again, where buildings should be considered in relation to their surroundings, where they must be in scale, and accord in breadth of treatment, and where other similar claims of art must be considered if the proposed work is to be in due relation to and in harmony with the existing or determined general scheme, all these are cases where the power of authority may well be invoked and exercised on behalf of the best interests of the community.

A Building Act is of little or no good here. The law can determine the height of buildings, fix the size of lighting areas, and so on, but no mere Act of Parliament can define the subtle qualities and delicate nuances which distinguish good art from bad, or rather shall we say which separate art from the lack of art.

In France and in the States, both of them lands of freedom, some such exercise of authority as I am advocating has been found necessary—why not here?

I am by no means suggesting a mechanical or despotic control such as would engender a monotonous uniformity and ultimately entail a loss of individuality, but a freedom under control—for freedom without control is licence, and licence tramples under foot all consideration for others' rights. This is the one side. On the other, so-called "rights" may be unduly and oppressively insisted upon. The terrorism, for instance, of "Ancient Lights" has frequently been prejudicial to architecture, and a short time since it culminated in such unreasonable demands as to paralyse all building operations.

We in this City, and indeed the whole country, owe a debt of gratitude to Mr. Howard Colls for boldly withstanding the legal opinions of the Courts and appealing to the House of Lords. A clear and satisfactory judgment has thus been obtained on the question, establishing a principle of law which will relieve both property owners and the public from formidable restrictions. To the architect this must come as a relief, for the difficulties which he has to encounter in the exercise of his duties are harassing enough without the added fear of litigation, which must necessarily hinder him from giving that thought and devotion to his art which the case requires. It will not be forgotten that an Easement of Lights Bill, introduced by Mr. Fletcher Moulton, K.C., on behalf of the Surveyors and ourselves, has been before Parliament the last two Sessions, and steps will be taken to continue its promotion when Parliament meets again. The Bill, as I believe you all know, covers the ground of the Colls *v.* Home and Colonial Stores case, and provides a simple machinery for arbitration.

Light and air have long been bracketed together, and, indeed, in most cases they do go together. There is, however, one important respect, attention to which has been drawn in the columns of *The Times*, in which the question of air calls for separate and independent consideration.

In the extension of suburbs of cities and towns the public health demands that the buildings should be farther apart and the open spaces larger the further they are removed from the centre.

In Germany the authorities regulate the growth of their suburbs. Different heights and different degrees of proximity are prescribed according to the locality. Towards the centre five stories is the limit which is reduced to three farther off, and then the houses must be detached. In certain directions a larger area must be reserved for the wind to blow freely about the houses.

Our London suburbs are becoming a source of considerable danger. Here the houses are indeed smaller, but they are so closely packed and crowded with unhealthy subjects that the air which passes over them to the centre is becoming denser and more impure every succeeding year, and should a serious epidemic occur the spread of contagion to the great centre and thence again outwards seems inevitable. The lungs of London, as they are rightly regarded, must not consist solely of the few open parks, which, after all, are now more or less closed in, but of wide channels and routes for currents of air to flow freely through. This is a matter I commend to the attention of our Town Councils.

One of the questions raised by my predecessor, and still under the consideration of the Council, is the growing habit of employing the Borough Surveyor or Engineer on what is really professional architectural work. It is true this official is usually a man of considerable capacity, but the very nature of his ordinary and proper work stands in the way of architectural or artistic accomplishments. The Committee appointed to report upon the subject have done so in a very thorough and excellent manner. They have ascertained the custom and conditions existing in other countries, and the result of their labours will be condensed and published in the JOURNAL. It is proposed to take steps to bring the matter to the notice of the public authorities and others who may be concerned.

It has been urged with much show of justice that our Institute ought to afford help and protection to its members in legal matters, when these matters are wrongly forced upon them, and are of such a character as to prejudice the interests of the profession. The principle has been approved by the Council, and a Board established, called the Board of Professional Defence, which, under proper restrictions, will be empowered to deal with such cases as come within the above category.

The increasing usefulness of the JOURNAL in bringing matters of importance to our notice leads me to suggest that this usefulness might be extended if members would more freely communicate matters of general interest—either in the form of letters to the Editor or of short articles—drawing attention, for instance, to buildings or objects of interest seen during their vacation, that others may be led to visit the same locality. There is scope also for short descriptive papers on various subjects connected with our methods or work, and such papers would often prove of great value and interest to readers of the JOURNAL. The opportunities afforded by the sessional papers for imparting information are necessarily few, but the JOURNAL may to some extent make good the deficiency.

These, Gentlemen, are some of the minor matters which interest and concern us as architects. I should like to add a few words upon the general condition and prospects of our art in this land.

Those of us who have watched the steady improvement in English architectural work during the last few years cannot but experience a measure of satisfaction and even of pride at the progress which has been made.

Our colleagues on the Continent and in America who have been inclined to regard architecture as a dead art in this country are already awake to the fact that there is more vitality and advance being exhibited here than anywhere else. Many American friends who have been absorbed by the excellent French methods they have studied have recently expressed to me their admiration of certain hitherto unsuspected qualities and beauties in our English work. This is both gratifying and encouraging, especially as under our unfortunate climatic conditions we are constitutionally prone to belittle everything that is of us or around us. Do not imagine, however, that our friendly critics have not been discriminating. "A man," said Ruskin, "may hide himself from you in every other way, but he cannot in his work—there you have him"; and our critics have had us, sometimes, to our confusion of face before them.

We cannot, however, fail to observe that there is a growing demand for the best and purest work, and as the appetite for what is good is whetted, all that is vulgar and bad will become repugnant and tend to disappear. As the sunshine of popular favour shines upon our art it must advance. Side by side with the good fruit there will still flourish the ill weeds, those vulgar street buildings and fantastic fripperies which flaunt and force themselves to the front. Yet we may take heart even from these, for they are a sign that there is something they are fighting against which will eventually be valued at its true worth. Let them alone, they must come to grief.

If "experience is the dress of thought," then a building is bound to reveal its true character at the last. If it glitters for show it proclaims that which is false and weak. "To dazzle let the vain design," said Pope; "to raise the thought and touch the heart be thine."

Architecture must tell its tale; it has its message to deliver. Like a musical score it expresses a great deal more than meets the eye. Its meaning is hidden behind the veil of outward symbol. It is a mystery whose voice is heard speaking according to each man's mood, capacity, and temperament. Just as the words of genius have a profounder meaning than the actual thought that prompted them, so true architecture possesses the power, as by a magic wand, to "call up spirits from the vasty deep"— from the ocean of human thought and passion.

Art *speaks* in all its manifestations alike. Every picture, every group of sculpture, every musical composition, is a vehicle for the conveyance of thought in poetical form. Architecture is the prose of inarticulate but beautiful thought and feeling. Sometimes it tells of the commonplace in life; rising higher it speaks of domestic peace and happiness; and yet again in more stately diction it sets forth the grander and larger purposes of life. It recounts the past, records the present, and holds up ideals for the future. But only when it is enriched from the sister arts of sculpture and painting can it tell the tale with the fulness of eloquence and power—for then it speaks to the heart in tender and solemn tones of all that is most grand and beautiful in life and humanity.

It is a pleasure to see that much has been done in recent years to cement and confirm the alliance of the arts. The brotherly readiness of the sculptor to aid in the good cause should be recognised, and his name coupled with the architect's in all such work. If the building is to be harmonious in expression these two must work together from its conception, and the sculptor must have a fitting and honourable place assigned to him whence he may take up his parable with effective force. Not a new or separate motif, but the same with new progressions, a harmony with one delightful melody.

When further the orchestra is increased by calling in the painter's art, then, like the vibrating strings with their soul-stirring chords, the refinements of tone and colour appeal to the heart with a new and higher power based upon the primal sympathies and emotions of the human breast.

Why, then, we may ask, have these arts so few opportunities of joint action? Is it not because architecture has forgotten her place and lagged behind? Is she not like Lot's wife, who, looking back, was stiffened into a pillar of salt? Looking back, there lies the explanation.

The sister arts of painting and sculpture have been the while advancing; they have developed, but architecture has stopped short and been content to look back to the past, to draw upon old periods and reproduce "defunct" styles, so that the living arts of the present age could no longer associate with one that was a mere mouldering survival from bygone times. A special architectural carver had to be trained to forge or imitate archaic forms and reproduce the quaint and grotesque figures of almost forgotten centuries ; while the painter has given place to the "firm of decorators," and his message to the dumb extravagance of mere costly material.

All this, I believe, will soon be past history, a vanished nightmare, for a new era has undoubtedly begun.

May we not justly feel sanguine? After all, the great thing is not so much where we stand as in what direction we are moving. It is no question of style. Every period has contributed something to our art. Gothic, with its rich luxuriance, has been the foster-home of the crafts, and if the crafts themselves seem to have lost their independence and vitality, it is because having had a part in beautifying the "styles," they have, like them, been made to serve in the copying and forging of bygone examples. Without denying that in the hands of true genius these past types may be taken up and carried forward, yet it is rather with the Renaissance forms that modern sculpture and painting can best and most easily be associated. It is natural, perhaps, that I should have this confidence in the development of the Later Renaissance. There, at any rate, it will again be possible to co-operate with one's brother artists, and that must be a step in the right direction. There are in its methods a freedom, a vitality, and a power of adaptation to modern requirements which surely stimulate conception and foster growth. There is, too, a characteristic wealth of stateliness and grandeur fitting it for all high and noble purposes. The genius of Inigo Jones, and subsequently of Wren, taking it up, each at the point at which he found it, carried it on far beyond its budding efforts, and established it as a great English tradition. Here is the "quarry," and, to quote the words of Goethe, "He does not deserve the name of architect except out of this fortuitous mass he can combine with the greatest economy, suitableness, and durability some form the pattern of which originated in his own soul."

Let us be enthusiasts. Our national architecture is not dead; there are many signs of life and movement within it. The spark is there; let us blow upon it and the fire will burn.

Let us encourage and stimulate the energies of those who, with the love of their art burning brightly, seek not arrogantly for something new, but to advance that which they have proudly inherited and to make its influence for good ever more and more known and loved.

VOTE OF THANKS TO THE PRESIDENT.

Mr. FRANK DICKSEE, R.A. [*H.A.*], said he had been asked by the Secretary to propose a vote of thanks to the President for his very interesting and illuminating Address. He undertook the duty with no hope of adequately expressing either their pleasure or his own at the President's effort, but merely to give his own tribute of appreciation for the words which had fallen from his lips. It would be wise perhaps for him to restrict himself to this, because he confessed he had a little hesitation in approaching the subject of architecture. As a simple-minded painter he might perhaps step in where architects would fear to tread; there was so much difference of view and of aim that it was rather risky, even if one had fixed opinions, to adopt a side. He had been, however, much interested in the whole of the Address, and to those who were not acquainted with all that was going on in the architectural world it was most edifying to be informed, in this short and summary way, of the chief incidents of the architectural activity of the year. What interested them in London especially was the Queen's Memorial referred to by the President. He had had the pleasure of seeing the model Mr. Brock had elaborated, and he felt confident that when the whole work was finished it would be a monument of which Londoners would very justly be proud. Another very interesting point was the subject of the education both of architectural students and of the public—the one perhaps much more difficult than the other. He keenly sympathised with the attitude of the President with regard to the interchange of the three arts. Perhaps no one in the profession had been more influential than Mr. Belcher in associating sculpture with architecture, and it was no fault of his if painting also had not been called in. If ever he had the opportunity he was quite sure Mr. Belcher would permit the painter to have the same privilege of showing his triumphs as the sculptor already had. He thought it would be a very good thing if in their schools there could be an interchange of study on the part of the students. They had to a certain extent initiated that in the Academy schools, and facilities were offered to architectural students to study in the painting school, or at least in the drawing school and the modelling school, and to the sculptor in the painting and architectural school, and so on. There would be great gain brought about by such a change in the ordinary course of study. The education of the public would be a very much more difficult matter; and when there was this uncertainty amongst those who should lead activity of thought in this branch, it was a little difficult for a complete outsider to know what to do. They were told that the beautiful Gothic art was dead. He was almost afraid that it might be. There was no doubt that architecture, to be really successful in its aim, must contain within itself the spirit of the time, and, alas! the spirit of the time was not that which would encourage the Gothic art. What was the spirit of the time? Utilitarianism, science, and advertising. Utilitarianism was good and science was excellent, but they could not apply either of those terms to advertising. Yet that was the marked characteristic of the age, and any art expression that they ventured upon had to face this advertising spirit of the age. It was a serious drawback to the expression of any form of art if, instead of being helped by the spirit of the age, it was hindered. But if it were made clear to the public that it was not those who shrieked the loudest who were most worthy of attention, perhaps by the means Mr. Belcher had suggested there might be a better taste gradually formed in the public. He was perfectly sure that there was an immense amount of talent in this country which only wanted encouragement to fulfil all manner of enterprises, which would strengthen and beautify the nation in every way. Perhaps if they could so enlarge their sympathies that they were not bound to be only Gothic, or only Renaissance, or only Classic, but to have a sufficiently wide sympathy with all the various expressions of art, to understand them all and (then came judgment) to decide which was the best expression for the particular interest contemplated, they should do well. For instance, he himself bitterly regretted that Newgate was gone. He thought Newgate was a splendid building. One had only to look at it to know it was a prison; it bore the stamp of what it was upon it. He should, however, be very sorry to see many of those Newgates about, and he was afraid that if they wanted to build something of the kind now that style of architecture was out of date, out of fashion, and would no longer be regarded; whereas for some things it might be the very best possible. He hesitated to speak of Gothic art, because in its day, when it contained within itself the expression of the life of the people, it was, in his view, the most beautiful architecture in the world; its mystery, the religious sense it awakened, the way it called in the magic of stained glass—all these things, he thought, taking it all in all, made it the most beautiful expression of architecture that the world had ever seen. He admitted, however, that to attempt any ambitious work in Gothic art now was risky, although in competent hands it was still possible to have a most beautiful expression of art conveyed in even modern Gothic. He should like to pay a tribute to the President, because the essential principle he had placed before him was devotion to beauty. It was, he thought, Emerson who said, "Though we travel the world over to find the beautiful, we must carry it with us, or we find it not." That was what Mr. Belcher had always done. He had carried the sense of the beautiful with him wherever he had gone, and that, combined with his loyal endeavour to combine the arts of painting and sculpture with architecture, placed him in a position which commanded their admiration and respect. They were proud that such a man should be placed at the head of such an institution as theirs, with his great capacity in his art, his devotion to beauty, and his keen enthusiasm for the welfare and fame of a profession which, in dignity and worth, should be second to none. He moved a hearty vote of thanks to the President for the Address he had so kindly delivered.

Sir BENJAMIN BAKER, K.C.M.G., F.R.S., LL.D. [*H.A.*], said that if Mr. Frank Dicksee, a Royal Academician painter, exhibited diffidence in intervening to propose this vote of thanks, he was afraid those present would think a poor engineer like himself exhibited the qualities of impudence in seconding it. His only qualification and his only excuse really was that he was a very old and very appreciative friend of the President. He had watched his career, and was especially pleased to see him in the position he occupied that evening, which he was sure would do honour to himself and be of great benefit to the Institute. In his Address the President had touched upon many topics. Mr. Frank Dicksee had referred to the allied arts of painting and sculpture; but the President had also touched upon his (the speaker's) branch, science, in referring to technical education, sanitary measures, and things of that class; and Mr. Belcher himself illustrated in his work that he was not only a preacher—which was generally dull work—but that he also followed out his own maxims; and the works of Mr. Belcher, he thought, would do more to educate the public in the way he desired than reading his Address. He quite agreed that the vision of "a wilderness of mean streets" that he spoke of seemed a perfectly hopeless problem to attack. He had seen a great deal of it during the last six months in connection with his work for the London Traffic Commission, because at all hours of the evening and night he had gone on the tops of omnibuses and tramcars to every suburb of London in order to see for himself where the people sprang from, and where they wanted to go, and how they were best to be accommodated. But it was not that particular passage in his Address of "the wilderness of mean streets" that struck him so much as another passage where he referred to "the vicious extravagance in material and so-called ornamentation." That was most prominent at the East End and beyond the "Angel" at Islington. It was exhibited, not in architecture, but in the thing which dominated the whole world at the present time, and that was women's dress. How they were to improve art at the East End and Whitechapel when the women dressed as they did he could not understand. One could see, as the President said, that it was done obviously with the object of compelling people to look at them, and it made them shudder when they did. Rows of artificial pearls—which would be worth £10,000 if they were real—were displayed on the most shabby dresses. He was bound to say he did not notice the mean streets when all those women were parading them! Unfortunately this extravagance was not confined—and that was the mischief—to the cities; in Ireland, twenty-five years ago, at Kerry or Limerick, where the pretty Irish girls sprang from, if one saw a donkey cart with a pretty girl sitting in it, the donkey was in front and the pig behind in the cart, and the girl harmonised with the rustic aspect of the cart and its surroundings, as she never had any head covering but her own thick hair and a shawl, which, if it was rainy weather, she put over her head, and, if not, on her shoulders. At the present time the same pretty girls were to be seen, but one never knew what dress the next one would turn up in—they were not in uniform at all. Sometimes the head covering was a broken-down matinee hat which had been through about seven hands; another time it would be a Whitechapel ostrich feather monstrosity bedraggled in the mud; but all the joy was taken out of the whole picture—it was discord, and not harmony. Seriously speaking, the killing of all artistic feeling by constant contact with such objects was, he thought, a most difficult problem. He could not imagine how Greek architecture or Greek sculpture could have been evolved if the Greek women had dressed like the Whitechapel women! They might be thinking he had said very little about science. He did not like to talk science after dinner, but if he might paraphrase a remark he had heard the Italian Ambassador make on a somewhat similar occasion he would say that since his boyhood he had been married to Science, but he was a lover really of Art; and that must be his excuse. The President, however, happily occupied a middle seat between the two, between Art and Science; in his work he combined both; and he was quite certain that he would have a very successful period of office. He had very great pleasure in seconding the vote of thanks.

The PRESIDENT, in responding, said he felt very much indebted both to Mr. Frank Dicksee and Sir Benjamin Baker for their very valuable remarks upon his Address. In Sir Benjamin Baker and Mr. Frank Dicksee they had perhaps the most distinguished representatives of science and art in this country, and therefore, as science and art formed the component parts of good architecture, all that they had said had been most valuable and interesting. He thanked members and all the distinguished guests who had honoured them with their presence that evening for so patiently listening to him.

9, Conduit Street, London, W., 12*th Nov.* 1904.

CHRONICLE.

The Opening General Meeting.

The inaugural meeting of the Session was a well-attended and highly successful function, the presence of several ladies among the visitors lending special grace to the occasion. Of the five surviving Past Presidents three were present—viz. Sir William Emerson, Mr. (now Sir) Aston Webb, R.A., and Mr. J. Macvicar Anderson. The Royal Academy was further represented in the persons of Mr. Frank Dicksee, R.A. [*H.A.*], who moved the vote of thanks for the Address, Mr. George Frampton, R.A. [*H.A.*], Mr. Hamo Thornycroft, R.A., Mr. Alfred Drury, A.R.A., and Mr. Goscombe John, A.R.A. Several Presidents of the Allied Societies had come to town for the occasion; nearly all the London Members of Council were present, and most of those who went out of office last Session. The new President, Mr. John Belcher, A.R.A., took his seat for the first time, and met with the most cordial of receptions. In the opening passages of his Address he intimated his intention of following in the footsteps of his predecessor by continuing the pleasant gatherings known as the President's "At Homes," instituted by Sir Aston Webb during his first year of office. Mr. Belcher's opinion that the public are at last beginning to take some interest in architecture seemed justified alone by the unprecedentedly liberal space afforded by the daily press to the President's Address this year. *The Times* printed nearly the whole of it, and the artist of one of the illustrated dailies, taking up the President's strictures on the eccentricities of *l'art nouveau*, sketched the sort of figure the Venus of Milo would have presented had she been depicted by an exponent of the new art.

Seventh International Congress of Architects, London 1906.

H.R.H. the Duke of Connaught has graciously consented to head the list of Honorary Vice-Presidents of the Congress, which up to the present is as follows:—

H.R.H. the Duke of Connaught.
His Grace the Archbishop of Canterbury.
His Grace the Archbishop of York.
His Grace the Duke of Devonshire.
The Most Hon. the Marquis of Ripon.
The Right Rev. the Bishop of London.
The Right Hon. Lord Windsor.
The Right Hon. Lord Esher.
Lord Balcarres, M.P.
Sir Edward J. Poynter, Bart., P.R.A.
Sir Laurence Alma-Tadema, R.A.

Sir Aston Webb, R.A.

At the distribution of Honours on the King's Birthday last Wednesday the distinction of Knighthood was bestowed upon Mr. Aston Webb, R.A. Following so closely upon his brilliant term as President of the R.I.B.A., this recognition by His Majesty of the eminent services Sir Aston has rendered to his art, and of the distinguished position he holds among his professional brethren, is peculiarly well-timed. Sir Aston's honours will be viewed with feelings of pride and pleasure by all who are acquainted with his work, whether as architect or as President of the Institute; he may, indeed, be confident of receiving the sincere congratulations of the entire profession.

Special Elections to Fellowship.

At the meeting of the Council on the 7th inst. the following gentlemen were elected to Fellowship of the Institute, under the proviso to By-law 9, viz.:—

Harold Ogle Tarbolton, of 39 Northumberland Street, Edinburgh, President of the Edinburgh Architectural Association.

Cholton James, of Charles Street Chambers, Cardiff, President of the Cardiff, South Wales, and Monmouthshire Society.

The Statutory Examinations.

Examinations of candidates for the offices of District Surveyor under the London Building Act, and of Building Surveyor under Local Authorities, held by the Institute pursuant to statute, took place on the 20th and 21st October. Of the eight candidates who presented themselves for the District Surveyors' Examination, three passed, viz.

Percy John Black, 22 Lambourn Road, Clapham.

John Moir Kennard, 13 Railway Approach, London Bridge.

John Todd, North Sea House, Billericay, Essex.

These gentlemen have been granted by the Council certificates of competency to fulfil the duties of District Surveyors under the London Building Act.

In the second Examination—that of Building Surveyor under Local Authorities—there was only one candidate, and he failed to satisfy the Board of Examiners.

The late Professor Robert Kerr [*F.*]

At the opening of the proceedings at the General Meeting on Monday formal announcement was made by the Hon. Secretary, Mr. Alexander Graham, F.S.A., of the losses the Institute has sustained by death since the closing meeting of last Session. With the exception of that of Professor Kerr, who passed away very recently, these announcements have already appeared in the JOURNAL, and the names will be found recorded on the Minutes, p. 20. Speaking specially of Professor Kerr as having in bygone years taken a prominent part in the affairs of the Institute, Mr. Graham said that their late colleague would be remembered by many of those present as a conspicuous figure amongst practising architects for a very long period. As one of the founders and the first President of the Architectural Association he deserved the gratitude of us all for having initiated a movement which had been attended, especially in recent years, with such marked success. Professor Kerr was a constant attendant at the Institute Meetings; it was only when health failed him a few years ago that he ceased attendance. He was one of a prominent band of men who years ago had rendered distinguished service to the profession. In everything he took up he was very enthusiastic, and in controversial matters especially he was a master. It might be thought that on some occasions the Professor was rather aggressive; that he evinced a spirit of combativeness in the views he put forward. But this was perhaps characteristic, as it is with many other men of similar temperament. He had a strong will, and very decided views on every cause he advocated. But beneath it all there was an undercurrent of good humour and good will towards everybody; and to those who knew him well there was an earnestness of motive apparent in all that he said and did. The Institute was under obligations to Professor Kerr for many things. They were indebted to him for suggesting the establishment of their Standing Committees on Art and Literature, Science and Practice. These Committees, as every member was aware, had done much service to the Administrative Body. They had been indirectly of vast benefit to members in distant parts of the world, and had brought together hundreds of members, who never would have come together otherwise, to discuss seriously, and he might say in a social way, matters of importance, not so much to themselves as for the benefit of the public. With regard to the Architectural Association, which had achieved such marked success, he trusted that whenever their records came to be fully written they would give a prominent place to Professor Kerr as one of the pioneers of architectural education in this country. Mr. Graham concluded by moving a resolution which he said he was sure would be accepted and endorsed by every member of the Institute—viz. that a letter be sent to the relatives of their deceased colleague, sympathising with them in the loss they had sustained and expressing their full appreciation of the many services rendered by the late Professor Kerr during a long and active career in the cause of architecture and architectural progress.

Professor Robert Kerr, Emeritus Professor of Architecture at King's College, London, who died on the 21st ult. in his eighty-second year, was born in 1823. He was a native of Aberdeen, was educated in that city, and served his architectural pupilage with Mr. John Smith, the city architect of Aberdeen. He was elected Fellow of the Institute in 1857, and served on the Council in 1861 and 1862, and again from 1870 to 1872.

Professor Kerr was one of the pioneers of the architectural education movement. As long ago as 1852 he put forward a scheme for the education and training of young men proposing to enter the profession. He was one of the Examiners in the Voluntary Architectural Examinations which preceded the present obligatory examinations, and was for many years a member of the Statutory Board of Examiners. In 1861 he was appointed Professor of the Arts of Construction at King's College, London, and became a Fellow of the College, holding the appointment until his retirement in 1890. He was one of the original founders of the Architectural Association, and when that body was established in 1847 he became its first President. From 1892 to 1896 he was the Lecturer at the Association on "Materials: their Nature and Application." In 1842 he was appointed District Surveyor for St. James's, Westminster, and he continued in this office until two years ago, when, owing to his failing health, the London County Council nominated his son, Mr. H. N. Kerr, to act as deputy surveyor.

Until a few years ago Professor Kerr was a regular attendant and one of the most fluent and frequent speakers at the Institute meetings. He took a prominent part in the debates on the draft of the present By-laws. On his initiative the Standing Committees of the Institute were established, he himself serving for some years on the Practice Committee.

He contributed to the Proceedings of the Institute Papers on a variety of subjects, including "Remarks upon the Historical References to Building and Art in the Earlier Writings of the Old Testament" (1859-60); "On Artificial Stone" (1862-63); "Remarks on the Evidence of Architects concerning the Obstruction of Ancient Lights, and on the Practice of Proof by Measurement, with reference to Recent Cases in the Courts of Equity" (1865-66); "On the Problem of Providing Dwellings for the Poor in Towns" (1866-67); "Development of the Theory of the Architecturesque" (1868-69); "Calculations of Crushing Weight" (1869); "Suggestions on the Architectural Voluntary Examination of the Institute" (1869–70); "Hints on the Commercial Aspect of Architectural Competitions" (1877); "English Architecture Thirty Years Hence" (1883–84); "Observations on the Plan of Dwelling-houses in Towns" (1893–94). He contributed generously to the early volumes of the present JOURNAL, among the more notable of his articles being "The Practice of Arbitrations" (Vol. IV. 1897); "The Legal Liabilities of Architects" (*ib.*); and "Ruskin and Emotional Architecture" (Vol. VII. 1900).

Professor Kerr's published literary works apart from the Institute include *Newleafe Discourses on the Fine Art Architecture* (1846); *The English Gentleman's Country House* (1865); *The Consulting Architect* (1886); *Town Houses*; and an edition of *Fergusson's History of Modern Architecture.* He was the author of the chapters on "Plan" and "Thoroughfares" in *The Principles and Practice of Modern House Construction,* edited by Mr. Lister Sutcliffe (1900).

His architectural works and designs included designs for a range of buildings on the Whitehall and Horse Guards site, to receive the War and Foreign Offices, with residences for the two Secretaries of State, as submitted by him in the competition held in 1857; the National Provident Institution, in Gracechurch Street, at the corner of Eastcheap, E.C.; "Dunsdale," at Westerham, Kent, for Mr. Joseph Kitchin; his designs, for which he won the second premium, for a National Museum of Natural History at South Kensington; Ascot Heath House, Berkshire; and Ford House at Lingfield, Surrey. He was the architect of Bearwood, in Berkshire, for the late Mr. John Walter, of *The Times.*

The funeral took place at the Church of the Annunciation, Chislehurst, Kent, on the 26th ult. A portrait of the late Professor appears in the current issue of the *A.A. Notes.*

Rural Housing and Rural District By-laws.

Mr. Justice Grantham, in *The Times* of the 10th inst., states that, at the request of many gentlemen interested in the question, he has arranged for a deputation to be received by the President of the Local Government Board. Mr. Walter Long has consented to receive the deputation on Thursday, 17th November, at 4 o'clock, at the offices of the Local Government Board, Whitehall. Mr. Justice Grantham asks any who have found these local by-laws injurious to the cause of rural housing for the poor or rural building to communicate with him at once, and, if possible, to attend with the deputation and be at the Local Government Board Office by 3.30 p.m. Mr. Long is anxious to meet gentlemen representing as many different rural districts of England as possible. The Duke of Sutherland, the Earl of Derby, the Hon. Cecil Parker, Mr. Albert Pell, Mr. A. R. Stenning, and others hope to attend the deputation.

The Smoke Evil and the Bell Harry Tower, Canterbury.

Mr. Lawrence W. Chubb, Secretary of the Coal Smoke Abatement Society, in a letter in Thursday's *Times,* attributes the surface decay in the stonework of the Bell Harry Tower to the action in the atmosphere of the products of imperfect combustion of coal. The Society's inspector reports that during two days recently he took observations of the factories in the neighbourhood of the cathedral, and that from the chimneys of ten firms alone he registered the emission of no less than 611 minutes of black smoke. It is stated that not many years ago the tower was reported to be in a good state of preservation; but the smoke evil is now having disastrous effects—and not only upon the ancient stonework, for work erected in recent years is also said to be fast decaying. Mr. Chubb asks whether it is not time that the evil effects of coal smoke were recognised, and stringent action be taken to put the existing laws against the emission of smoke into action. The cost to the nation caused by its destructive action is far greater than the cost of preventing the emission of smoke, if indeed its prevention is not in the long run an actual saving to the manufacturer.

Old English Church Screens.

The Institute is indebted to Messrs. F. Frith & Co., Ltd., Photographers, of Reigate, for permission to reproduce their copyright photograph of the Screen and Rood-loft at Staverton Church, Devon, given as an illustration in Mr. Bligh Bond's Paper on "Screens and Screen-work in the English Church" [JOURNAL, 15th October].

Plenum Ventilation and Royal Victoria Hospital, Belfast.

A further and final communication from Mr. Henman with regard to this matter will appear in the next number of the JOURNAL.

NOTES, QUERIES, AND REPLIES.

Screens and Screen-work in the English Church.

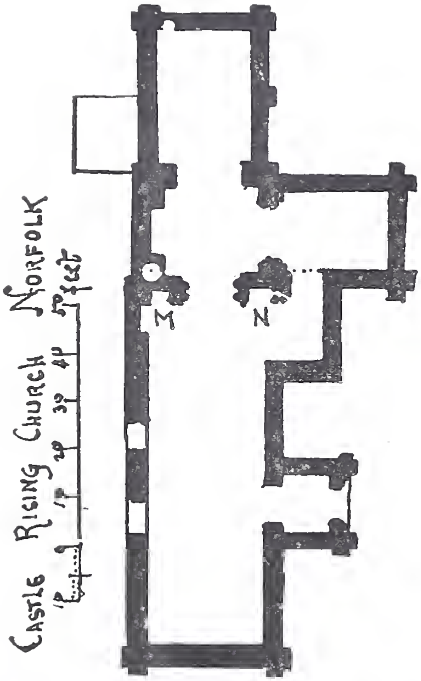
From Mr. S. J. NICHOLL [*A.*]—

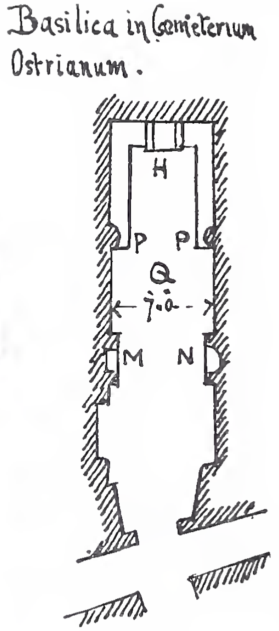
I have read with interest Mr. F. Bligh Bond's article in the JOURNAL of the Institute, and venture to call attention to what appears to me to be evidence of Roman origin for the triple arches at the entrance to some sanctuaries illustrated in the Paper.

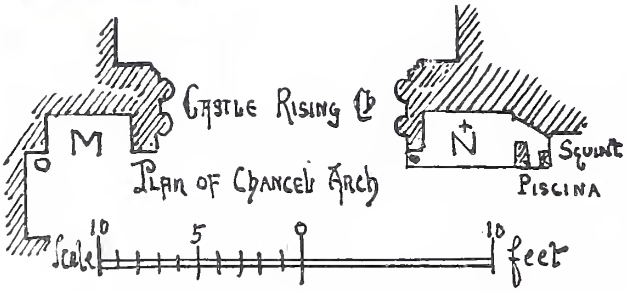
The plan of the principal basilica in the "Cemeterium Ostrianum," a work attributed by De Rossi to the earlier years of the fourth century, shows on the piers on either side of the central opening to the sanctuary niches or recesses (marked M and

N on the plan), "in one of which the sacred books used to be kept, and in the other the sacred vessels necessary for the offering of the holy sacrifice." I quote from the English edition by Dr. Northcote and Bishop Brownlow.

Similarly placed and used were the side arches, or rather recesses, of the triple arrangements; for instance, at Barfreston and Castle Rising, in which there is no screen idea, as the recesses were not pierced. The recess on the Epistle side in the latter case was used eventually as a chapel with an altar, but only in the thirteenth century, when it was canopied with a pointed arch, and furnished with a piscina, probably at the time a sacristy was added.







The recess on the Gospel side continued in usage probably as a credence for the offerings.

1, *Caversham Road, N.W.:*
19*th October* 1904.

The Tomb of Nicholas Hawksmoor.

From Messrs. W. B. Hopkins [*A.*] and E. R. Walker—

We are superintending some repairs and renewal at Shenleybury Church, Herts, in the graveyard of which lies buried the body of Nicholas Hawksmoor. We think it well to send to you for preservation in the pages of the Journal a notice of this fact, and a copy of the inscription, which is as follows:—

P. M. S.
L
HIC JACET
NICHOLAUS HAWKSMOOR, ARMr.
ARCHITECTUS.
OBIIT VICESIMO QUINTO DIE (*obliterated*)
ANNO DOMINI 1730.
ÆTATIS 75.

The tomb is of brick raised about 15 inches above the ground, with a very thick slab on the top; the latter is cracked in two. We are having the brickwork joints and crack cemented. The tomb is under a great yew-tree opposite the east window.

5, *Staple Inn, Holborn, W.C.:* 17*th October* 1904.

London Street Architecture.

In an article on "London Street Architecture and its Possibilities" in the *A.A. Notes* for November Mr. Halsey Ricardo brings forward some ideas for consideration when the laying out of important business thoroughfares is in contemplation. Each pavement, he proposes, should be wide enough to take three streams of traffic, and the road wide enough to take four. The traffic should be divided into fast and slow; the middle of the road being devoted to quick traffic, two streams going opposite ways, and on each side one stream of slow-moving traffic. Similarly with the foot traffic, the slow nearest the shop windows, the rapid nearest the roadway. To obtain the wide pavement needed it would be requisite to set back some seven feet of the shop fronts, the overhanging first floor of the houses forming a useful shelter to shop-gazers and slow-going pedestrians.

Seeing that the ground-floors of our business premises must be mainly fronts unobstructed by piers, Mr. Ricardo asks whether we do right in constructing great Italian palaces upon these apparently inadequate ground stories. He deprecates the heaping of tons and tons of stonework and brickwork upon a steel girder—an added danger should fire break out. All that such house fronts require is protection from the weather and from fire. This can be secured by using thin skins of some impervious material that will afford the necessary protection to the framework of the structure without unduly burdening it with weight. Mr. Ricardo suggests terra-cotta glazed in colour for this skin, at any rate on the outside of the fronts and backs; and on the inside, thin concrete slabs, with an air-space between. In place of stone mouldings and carvings, architectural effect may be got in terms of colour, and the whole section of the street, say for one hundred yards, be treated, both sides, on one broad and simple scheme. Mr. Ricardo proposes a balustraded terrace on the second (or third) floor for the benefit of residents whose flats begin at that height. The upper floors, he shows by a diagram, would be set back to the level of the shop-fronts. The terrace would give a sense of space to the set of rooms, would make a pleasant *al fresco* sitting-room in fair weather, and give a picturesque view of the life and movement in the street. Moreover, the balustraded terrace would form an effective coronal to the street, and help to weld together such individuality of treatment in the streets as might be thought desirable.

Greek Art.

"Early Greek Art, as illustrated by the Elgin Marbles and the latest Excavations," was the subject chosen by Dr. Emil Reich for his University Extension Lecture at the British Museum on the 29th ult. Speaking of the beauty and importance of the Parthenon, the most perfect piece of work of all time, he said it must be remembered that the word "beauty" in our modern times had taken a meaning entirely different from the meaning the Greeks attached to it. The word "beauty" now meant largely harmony of lines, but the Greeks did not think beauty consisted only in lines. The Greek aim was a mixture of grace and dignity, and he would add a third quality—repose. What struck one so much in Greek statues was the calm, or, as we call it, serenity. It meant that the nation which felt that, realised that what had to be done was done; that they had done the great and the small, and that there had come over them that repose which was only possible in men and women who had brought about a perfect harmony in themselves. It was this expression of serenity that made Greek art so different from anything we had. It was when we traced Greek history that we could tell where Greek ideas came from. The Greeks saw that they must succumb to their enemies unless they looked to their intellectual development, so that by sheer force of intellect they could beat them down. Thus arose the Grecian intellect, and it gave rise to a greater expression in art. Where there was a greater life there must be art. This was the true origin of Greek art. They did not take it from the Egyptians, for art could not be given. They fought for it, and, in fighting, the powers which make for art were born in them. The excavations of Crete showed clearly that Greek art was really of their own growth. It was stimulated by the fighting against great empires—it was war and conflict which was the father of all nations. These cyclopean walls indicated that there must have been fighting of the most gigantic kind, and that was what made the art. Evidently for 1,500 years before the Parthenon was built, the Greeks had prepared themselves, and it was from 490 to 449 B.C. that the Greeks, in a series of most wonderful engagements, in which their intellect did more than their physical vigour, defeated the biggest empire in the world, and those who were left felt that they had reached the summit of their life; and the great and final expression of that feeling was the Parthenon. Could we wonder that the Greeks felt it, for did not we feel it after so many years? In the Parthenon one felt that he had not only seen a fine thing, but that he had seen the whole of human life—the whole of what they called human life in marble. It was totally different from anything else. They saw that everything most beautiful, except the statue of Minerva, was outside—the wonderful columns, metopes, pediments, and frieze. The movement of their souls and the whole change of the inner man was not given inside, because no one ever entered. But the temple could be seen from an enormous distance, and the people were constantly in the presence of this expression of the greatest and deepest religious ideas. The man who in modern times had given the deepest remarks on architecture was Schopenhauer, and he gave the idea very simply that a column, for instance, was meant to express gravitation, and that anything which went against this principle, such as a column very thin in the middle, was silly. It must express support in the first place. In the modern church they found that idea of support exaggerated; in Gothic churches they found the buttresses very elaborate, but in the Parthenon they found two rows of columns—that was all. Each column was the same—each was a simple Doric column. The architrave was as simple as it could be. It plainly said, "I am here to support this big building; that is all I have to do." But there was one thing which gave them the idea that the columns were more than a support. It had long been noted that not only did these columns swell in the middle, but that they twisted round, and gave the column a sort of human force—they saw the effort of the column to support the building. The Greeks were profoundly religious; we are religious on the seventh day, but the Greeks were religious every day of the week. And so in their temple their ideas of religion were outside, and shone down on Athens always. Nowadays, our religion being rather of an intermittent kind, we wanted music; we wanted an intense shiver and at once. The Greeks did not want anything of that; they were intensely attracted by music, but they would not have it as part of their services. They wanted sculpture, which was more permanent, more intense—was always there. The Parthenon was erected in honour of Minerva, the goddess of war and wisdom, of virginity and holiness, of irreproachable severity, and they might have expected the great temple to have reminded everyone of the great contest with the Persians. But there was not a trace of that. The temple must have cost millions of money, but it never entered their minds to have the slightest allusion to any of their immortal fights. Their idea was to show that they believed the gods helped them, and were willing to help them in the future. There were any number of figures round the frieze, but no representation of any of their heroes. The feeling left was that the Greeks had found the art of proportion. They saw the procession of the Panathenaic festival portrayed, and it was really a story of man's life. It was not only a pageant, but told everything that happened. That procession was not only a spectacle, but was a lesson in art, life, politics, and everything. The Parthenon was only the same idea expressed in marble. And if ever the time came when the world united and had its Parthenon, that simple old temple would be the model.

REVIEWS.

ORNAMENT.

Ornament and Its Application: a Book for Students, treating in a Practical Way of the Relation of Design to Material, Tools, and Methods of Work. By Lewis F. Day, Author of "Pattern Design," "Nature in Ornament," &c. 8vo. *Lond.* 1904. *Price* 8s. 6d. [*B. T. Batsford*, 94, *High Holborn.*]

This is a sequel to Mr. Lewis F. Day's recently published *Pattern Design*. It follows, to some extent, the lines of his earlier handbooks entitled *Planning of Ornament* and *Application of Ornament*, now both out of print, but is by no means a mere repetition of them; in every way it is larger and fuller, while the number of the illustrations has been very considerably increased.

In this book Mr. Day discusses the relation of design to workmanship. In his view this relationship cannot be too much insisted upon; indeed it is so intimate that, to use his own words, "style and treatment are as effect and its cause. Historic ornament, as we call it, is less a matter of time and country than of the methods of workmanship then and there practised." Again: "Too much stress has been laid upon the Egyptian, Assyrian, Greek, Roman, Byzantine, Gothic, Renaissance style of ornament, and not enough upon the character which comes of its workmanship"; and a page or so farther on: "As a matter of fact, what we recognise as traditional style in ornament is to a great extent evolved from methods of workmanship; and the character which comes from workmanlike use of material and tools is really what artists, as distinct from archæologists, call style—characteristic and expressive *treatment* that is to say."

These extracts will be sufficient to indicate the line taken by Mr. Day in his treatment of the subject. In support of it he produces a wealth of illustrative examples drawn from all classes of work and of all periods. He shows, for instance, how the simplicity which gives such an astonishing dignity to Egyptian carving is directly traceable to the extreme hardness of the granite employed, while, on the other hand, much of the success of Grinling Gibbons's work is due to the mastery of his direct stroke, expressive of the softish lime or pear tree in which he worked. He gives an illustration of a thirteenth-century French grille, and explains how the design, with its numerous spiral scrolls and lack of straight lines, was due to the difficulty experienced by the mediæval smith in making a straight bar. He shows how the distinctive character of Byzantine, as well as late German, carving arose largely from the use of the drill; how the harsh colour of the Della Robbias was none of their choice, but the best they could do with tin enamel; how the Chinese potter was forced to use blue rather than any other colour because cobalt was the only powerful underglaze he could trust to stand the heat of his kiln; and so on.

As an example of design originating directly from the tool, Mr. Day mentions the well-known Gothic panel enrichment known as the linen pattern. This, which is sometimes assumed to be an imitation in wood of a folded napkin, is, he tells us, simply the result of the joiner's endeavour to get a sufficient play of surface on his panels to distinguish them from the flat stiles. Nothing was easier for him than to plough along his plank with a moulding plane until the surface was all in ridges, and then to cut it up into convenient lengths for his panelling. When he came to frame his work together he naturally bevelled the panels at the ends to make them fit into the rebates, and the sloping section of the waved panel thus obtained required only a very little carving to reduce what might be an ugly line into a graceful one. Thus he arrived, at last, at something not unlike the overlapping edges of a folded cloth.

But it must not be supposed that Mr. Day would have his readers believe that all a designer requires is a knowledge of the limitations of his material; or that ornament springs, more or less automatically, from the process or tool employed. It is true that he lays down the general rule that the design of successful ornament must always depend upon the frank acceptance by its author of the limitations under which he has to work, but besides this there is what Mr. Day calls "the technique of design," its application, that is to say, to its position, place, and purpose. This leads him to the discussion of composition, symmetry, variety, proportion, and how far rules of proportion are of use, the suitability of certain forms to repetition, the value of line in ornament, and similar subjects, upon all of which he has much to say of interest.

Always, however, Mr. Day insists that true ornament can never be an afterthought, but must always be considered from the very beginning. The belief that ornament is a something added to a thing after it is made is, unfortunately, a very prevalent one. As Mr. Day remarks, a county councillor is quite capable of supposing that an engineer has only to plan a convenient and substantial bridge, and it is for the artist afterwards to make it beautiful with architectural trimmings. As a corrective of such an entirely false idea, this book on ornament and its application should be invaluable.
Benjamin Walker.

Erdington.

OLD HALF-TIMBER WORK.

The Old Cottages, Farmhouses, and other Half-timbered Buildings in Shropshire, Herefordshire, and Cheshire. By J. Parkinson and E. A. Ould. Price 21*s. net.* [*B. T. Batsford,* 94, *High Holborn, W.C.*]

This work, admirable in many ways, suffers to some extent by the limitations set by the authors. There does not seem any sufficient reason for confining the book to examples of half-timber work; and granting that a large bulk of the domestic work of these three counties is of timber, we should be willing to part with some two or three dozen of the less interesting plates in the volume to include in their stead some of the contemporary examples of stone and brick built dwellings.

The interest of the book would also be far greater were some views given of interior work (often more interesting than any other in timber structures); although it is difficult and often impossible to get such views, it cannot be so in all cases, and the omission is an evident defect.

Apart from these two points the work is an admirable one, forming a valuable record of the past, specially needed as succeeding years must gradually diminish these relics of mediæval life.

The introduction and explanatory notes, occupying thirty-nine pages, are admirably and concisely written. The peculiar isolation of the Western counties, their abundant forests, their distance from manufacturing and ship-building centres, all lead to a greater development of timber building than elsewhere.

Mr. Ould also gives, as a marked feature of the local peculiarities, the greater abundance of ornament, often of a rude and archaic character, the great frequency of curved struts—all of which characteristics become more accentuated towards the north, reaching their culmination in the timber work of Lancashire.

In these counties, too, timber work is frequently found as late as the early part of the eighteenth century.

Mr. Ould defends the modern use of half timber; but, in spite of much excellent work of his and of Mr. John Douglas, of this type, we feel this is rather a harking back to antiquarianism than a genuine following of tradition.

The very essence of the former use of timber was its great abundance in particular districts, the absence of other building materials; and now that these conditions no longer obtain, it seems to be an obvious mistake to work in such a style.

The illustrations fall under three heads—those which are architecturally fine, which are naturally, from the nature of the subject, few in number; those which are good examples of the value of simple and effective grouping, like the end view of a house at Craven Arms, a perfect example of the suitable juxtaposition of a simple gable and chimney shaft, and a cottage at Alderley Edge; and those plates having merely an antiquarian value, such as a cottage at Weobley (Plate LVI.), and cottages at Pembridge (Plate L.).

The photographs are excellent in quality, and are mostly taken from good points of view.

The chief criticism that can be made is that if such a work is limited to half-timber structures it would be more interesting and valuable were it to include those larger and more architectural buildings in which the possibilities of design are further developed and more apparent, and if limited to the smaller buildings it is a pity also to limit it to timber structures.
Herbert W. Wills.

ALLIED SOCIETIES.

BIRMINGHAM ARCHITECTURAL ASSOCIATION.

Mr. Thomas Cooper [*F.*], President of the Birmingham Architectural Association, delivered his Presidential Address on the 28th ult. before a large attendance of members at the Norwich Chambers. He stated that it was not the architectural seed they had to fear so much as the barrenness of the soil in which it had to grow. Architecture was by no means an altogether lost art, and there was a sufficiency of the true artistic spirit to be found could it only meet with a suitable environment to aid its growth. But in these days all the conditions seemed adverse. The increase of luxury and the almost universal indulgence in ostentatious display had necessarily led to the cheap and nasty, and vulgarly pretentious erections of the jerry-builder. Mr. Cooper spoke of the prospect of a scheme for architectural education being formulated—an education that might foster the artistic instincts, while it did not lose sight of the many-sided responsibilities that crowded in upon the architect in the carrying out of the multifarious duties that modern custom had allotted to him. Touching upon local topics the President remarked that recently a letter appeared in the local press asking how it was that the Birmingham Architectural Association, with others, had not come forward to prevent the erection in so important a street as Stephenson Street of such a front (to be ultra-Irish) as the back of the New Theatre Royal. The reply was obvious. The Association had no means of knowing before it was erected what manner of building was proposed; and secondly, that if it had that knowledge it would have no power to enforce its views. They could not but regret that the promoters of the scheme in question should, in providing a home for the drama, have thought fit entirely to disregard another art, and thrust such a purely utilitarian erection as a plain brick wall and a plumber's trophy before the gaze of those entering the city by its most important gate. The object should be to try and educate and lead the public as to what the requirements of good architecture were; and so in time to obtain a measure of that civic pride, combined with a true feeling for art, which produced such glorious results as those that still remained to us, in fading splendour, in the great cities of the Middle Ages.

MINUTES. I.

At the First General Meeting (Ordinary) of the Session 1904–05, held Monday, 7th November 1904, at 8 p.m.—Present: Mr. John Belcher, A.R.A., *President*, in the chair, 63 Fellows (including 22 members of the Council), 75 Associates (including 1 member of the Council), 5 Hon. Associates, and several visitors—the Minutes of the Special and General Meetings held Monday, 20th June [Journal, 25th June], were taken as read and signed as correct.

The Hon. Secretary announced the decease of the following members: Richard Knill Freeman [*F.*], Frank Manoah Kent [*F.*], Arthur Green [*F.*], Percy William Barrett [*A.*], Ernest Simm [*A.*], William Henry Arber [*F.*], Edward Baldwin John Knox [*A.*], John Lewis Thomas [*H.A.*].

The decease was also announced of Professor Robert Kerr [*F.*], and on the motion of the Hon. Secretary it was

> Resolved, That the Institute desires to express its deep regret at the passing away of its esteemed Fellow, Professor Robert Kerr; and that a letter be sent to the relatives of the deceased sympathising with them in the loss they had sustained and expressing the full appreciation of the Institute of the many services rendered by Professor Kerr during a long and active career in the cause of architecture and architectural progress.

The following members attending for the first time since their election were formally admitted by the President:—Frank Dicksee, R.A. [*H.A.*], Henry Langton Goddard, M.A.Oxon. [*F.*], President of the Leicester and Leicestershire Society of Architects, and John Keppie [*F.*], President of the Glasgow Institute of Architects.

The Secretary announced the names of the candidates successful in the Statutory Examinations held by the Institute on the 20th and 21st October.

The following candidates for membership, found by the Council to be eligible and qualified according to the Charter and By-laws, were recommended for election:—As FELLOWS (18), William Arthur Aickman; Shapoorjee Nusserwanjee Chandabhoy (Bombay); John Burland Chubb; Bernard John Dicksee [*A.*]; William Dunn; Frank Emley (Johannesburg); Alexander Cunningham Forrester; Albert Lewis Guy [*A.*]; George Alfred Humphreys, A.R.C.A. (Llandudno); Alfred Victor Ingall (Birmingham); William Leck (Johannesburg, Transvaal); William Thomas Lockwood (Chester); Edward Charles Philip Monson; Herbert Alexander Pelly [*A.*]; Ernest Richard Eckett Sutton (Nottingham); Edward Thornton [*A.*] (Calcutta); William Frowde Young; Robert Watson [*A.*]. As ASSOCIATES (32), Richard John Allison (*Qualified Special Examination* 1904); Ernest Gladstone Allen (*Probationer* 1900, *Student* 1902, *Qualified* 1904); Walter Hervey Bagot (*Probationer* 1901, *Student* 1903, *Qualified* 1904) (Adelaide, South Australia); William John Ball (*Probationer* 1895, *Student* 1896, *Qualified* 1904) (Warrington); Ernest Bates (*Probationer* 1894, *Student* 1897, *Qualified* 1904); Claude Batley (*Probationer* 1898, *Student* 1903, *Qualified* 1904) (Kettering); William Edward Arthur Brown (*Probationer* 1899, *Student* 1901, *Qualified* 1904); Archibald Neil Campbell (*Probationer* 1900, *Student* 1901, *Qualified* 1904); William Alfred Thomas Carter (*Probationer* 1898, *Student* 1902, *Qualified* 1904); Charles Michael Childs (*Probationer* 1896, *Student* 1899, *Qualified* 1904); Benjamin Charles Chilwell (*Probationer* 1898, *Student* 1900, *Qualified* 1904) (Wednesbury); Charles Barry Cleveland (*Probationer* 1899, *Student* 1901, *Qualified* 1904); Norman Culley (*Probationer* 1901, *Student* 1902, *Qualified* 1904) (Huddersfield); Spencer Carey Curtis (*Qualified Special Examination* 1904); William Thomas Curtis (*Probationer* 1898, *Student* 1901, *Qualified* 1904); William James Davies (*Probationer* 1897, *Student* 1899, *Qualified* 1904) (Sidcup); Alfred Harry Gloyne (*Probationer* 1891, *Student* 1894, *Qualified* 1904); Henry Percy Gordon (*Probationer* 1894, *Student* 1901, *Qualified* 1904); Percival William Hawkins (*Probationer* 1894, *Student* 1900, *Qualified* 1904); Basil Bramston Hooper (*Probationer* 1902, *Student* 1902, *Qualified* 1904) (Dunedin, New Zealand); Vincent Hooper (*Probationer* 1896, *Student* 1900, *Qualified* 1904); Percy Cunliffe Pilling (*Qualified Special Examination* 1904) (Bolton); Kenneth Duncan Stuart Robinson (*Probationer* 1901, *Student* 1901, *Qualified* 1904); George Allen Ross (*Qualified Special Examination* 1904) (Montreal, Canada); Tom Trevor Sawday (*Probationer* 1900, *Student* 1902, *Qualified* 1904) (Leicester); Archibald Scott, Jun. (*Probationer* 1898, *Student* 1901, *Qualified* 1904) (Glasgow); Norman Odell Searle (*Probationer* 1897, *Student* 1903, *Qualified* 1904); Robert Ernest Stewardson (*Probationer* 1900, *Student* 1902, *Qualified* 1904); Frank Edward Stratton (*Probationer* 1897, *Student* 1900, *Qualified* 1904); Percy James Westwood (*Probationer* 1898, *Student* 1902, *Qualified* 1904); George Henry Widdows (*Qualified Special Examination* 1904) (Derby); Frank Wilson (*Probationer* 1893, *Student* 1896, *Qualified* 1904) (Sheffield). As HON. ASSOCIATE, George Noble, Count Plunkett, B.L., F.S.A., M.R.I.A. (Dublin).

The Opening Address of the Session having been delivered by the President, a Vote of Thanks moved by Mr. Frank Dicksee, R.A. [*H.A.*] and seconded by Sir Benjamin Baker, K.C.M.G., F.R.S., LL.D. [*H.A.*], was passed to him by acclamation and briefly responded to.

The proceedings then closed, and the Meeting separated at 9.40 p.m.

CONSTRUCTION AND STRENGTH OF REINFORCED CONCRETE COLUMNS.

By W. Dunn.

Read before the Royal Institute of British Architects, Monday, 21st November 1904.

IN the minds of many architects and builders there lingers, based on many unpleasant experiences, the feeling that concrete is a treacherous and unreliable material. In all such experiences there was something mysterious: the cement came from a maker of established repute, it had been specified "Best London" Portland cement, the sand and gravel looked clean, and the builder was an honest man. Nevertheless, it failed to set; it cracked; it thrust out the walls, and generally led to a great deal of trouble. I propose to-night, with your indulgence, to examine some of the precautions we should take to prevent such mischances.

To make good concrete much care in the selection of the materials and in the mixing is required. The cement is the most important ingredient, and we naturally consider how we are to get it. In my view, the only way to get good cement is to constantly test it, and to reject the cement which is faulty.

To rely wholly on a maker's name I have found, from experience, is almost useless. I do not undervalue the importance of employing only those who have a long record of good work. In the manufacture of cement there is every temptation to make more money by using less care, and by indifference; and the men who are determined to make a good article at any cost are but few indeed. It is always undesirable to specify any special maker if we can avoid it.

Now, to thoroughly test all the cement as to chemical composition, specific gravity, tensile and compressive strength, fineness of grinding, and constancy of volume is, no doubt, impracticable in buildings when the amount required is small, and when it is only brought on the ground in small quantities. But there is, unfortunately, no other way of ensuring that only good cement is used, and if you test the cement delivered on your works frequently, so that you become known to the merchants, you will find that a dangerous article is less and less frequently sent. I say dangerous, because when floors, walls, roofs, or pillars are made of concrete, a bad cement is really dangerous to life. Apart from danger, we suffer from inferior cement in many ways: cement rough cast, which shows fine hair-cracks all over, lets in the water; cement floors crack and eventually work up; concrete foundations from which, if made properly, sparks would fly when struck by the pick, fail to set and are little better than sand and gravel, to our serious loss.

If we want a good article, the first step is to state clearly what are the qualities we require. The British Standardisation Committee is now drafting a standard specification for cement. It is not yet published, but when it is, unless very materially altered, it will, if what I have heard of it is correct, be of little use to architects. It would be an excellent plan if the Institute, the Builders' Institute, and the cement makers, could agree upon a standard, suitable for architectural work; and possibly our Science Committee might take the matter up. But until we can write in our specifications that the cement is to be in accordance with the Institute standard we must describe it ourselves. Many cement experts have given us model specifications, but the manufacture of cement has improved greatly in this country within the last five years, and there are some points in cement specification required for building work which a cement expert scarcely values.

I shall therefore say a few words about some of the usual clauses in cement specification, and about the methods of testing.

Fineness of Grinding.—This is all-important, as only the very fine particles have cementitious value. Anyone for a few shillings can purchase cement sieves and test this quality. Foreign makers were much ahead of us a year or two ago; now we can get English cement which will all pass a 76 by 76 and leave only 10 per cent. on a 180 by 180 sieve.

A good cement is economical; we make a stronger mortar or concrete with much less of it, so that the extra cost is more than repaid. The particles which are retained, even on a 180 by 180 sieve, are practically so much sand.

Time of Setting.—I strongly urge the use of a slow-setting cement; but still we find much difficulty in getting it. I suggest that pats made with 22 per cent. of water should set in not less than five hours when the temperature is at 34° F., and in not less than twenty minutes when the temperature is at 75°, and proportionately in time when the temperature is between these points.

The cement should be considered (as usual) as set when a needle having a point $\frac{1}{16}$ of an inch square and weighing $2\frac{1}{2}$ lbs. makes no impression. Remember that an excess of water retards the time of setting but diminishes the strength, and that it is useless fixing a limit for the time of setting, unless we also specify the temperature. Quick-setting cements are of no use in ordinary building work; all our operations take time, and when setting begins before the concrete is deposited in place, that perfect union which is essential is destroyed.

Soundness or Constancy of Volume.—This, I should say, is one of the most important qualities a cement should have. Tests without elaborate apparatus are fortunately available. Make two cement pats on small pieces of glass, tap them out to a circular shape, about 3 inches diameter, $\frac{1}{4}$ inch thick in the centre, and with thin edges; keep one under water and one in air for several days. The cement should then show no cracks, change of shape, or tendency to curl off the glass, if sound.

What is called an acceleration test is sometimes used. In its simplest form it is the boiling test, and is made as follows:—Make two or three small balls of cement about $1\frac{1}{2}$ inches or 2 inches diameter, using the least possible quantity of water, and let them harden, resting on some non-absorbent material in moist air; after forty-eight hours put these balls in a pot of water and slowly heat to boiling point; keep the water at this temperature for an hour or so and let them gradually cool. A thoroughly sound cement should show practically no cracking or disintegration. The value of this test has been much criticised; undoubtedly it is a severe one.

Another test is Le Chatelier's, and consists in making small prisms of neat cement, cast in cylinders of thin metal which are not continuous, but have an opening on one side. At this side are attached two long prongs of steel, so arranged that if the opening in the side of the cylinder increases by the swelling of the cement, this increase in the distance between the ends of these prongs will be increased a certain number of times more. The prisms are cast in the cylinder and on a plate of glass, the cylinder being kept together by a metal clip while the prism is being made. The clip is removed when the prism is set, and the prism, still enclosed in its casing, is placed in water, which is gradually heated to the boiling point and kept at that temperature for about four hours. The expansion, as shown by the distance between the ends of the prongs, should be almost zero.

Tensile Strength.—This I regard as the least important; it is the test on which the most varied results may be got by different observers according to the method employed in filling the briquettes. A strength of 400 lbs. per square inch at seven days and 25 per cent. increase in twenty-eight days is usually asked for and easily attained; many briquettes I have found go up to nearly 1,000 lbs. at seven days. In mixing, use the minimum quantity of water, about 22 per cent. by weight being usually sufficient. Mix the cement on a smooth non-absorbent slab, and ram it in the mould very gently in layers of about ¼ inch. When the moulds are filled strike smooth with a trowel and keep in a damp, cool atmosphere until you can remove them from the moulds. There are many advocates for sand, in place of pure cement, briquettes; briquettes made with one of cement to three of Leighton Buzzard standard sand being required to bear not less than 150 lbs. per square inch at seventeen days and 230 lbs. at twenty-eight days.

A reliable testing machine is required for this work, and, as I say, the results obtained vary largely with the skill and care of the experimenter.

Chemical Composition.—I do not think we need specify the chemical composition. Remember that when we insert a condition in our specification we not only impose the obligation on the builder to comply with it, but we lay a burden on ourselves to see the condition carried out. We cannot ourselves make a proper analysis, and have rarely either the money or the time to get a chemist's report.

Weight.—The clause in old specifications requiring the cement to weigh not less than 112 lbs. per striked bushel is for several reasons obsolete. It should be replaced by a determination of the apparent density which is dependent on the fineness of grinding, and is required for the purposes of calculating the proportions by the volume of the materials to be used in preparing the concrete. In preparing the concrete the cement should always be allotted by weight, its quantity being calculated from the determination of the apparent density. By this method a premium is put upon fineness of grinding, which is one of the characteristics of the best quality of cement.

I strongly urge my brother architects to test the cement they use by one and all of the foregoing tests, as often as they can. I am sure it will save many after troubles. I am well aware that tests by inexperienced and unskilled operators are very unreliable; but very little practice is required for the simpler tests, and if these raise doubts as to the cement, we may then send samples to some expert to settle the matter.

It is not unusual to specify that sufficient cement should be delivered on the works at starting, kept stored in a dry weather-proof shed to a depth of not more than 2 feet and turned over daily for a fortnight before use. It is found that makers send out the cement hot from the mills, and (unless it is a very high-class cement) it is much improved by air slaking. Aeration seems to improve an inferior cement by the slaking of the free lime, which, if it took place in the work, would be dangerous. A thoroughly sound cement should have no free lime in it, and is not improved by air slaking; it rather suffers; cement in which there is no free lime can be produced by the maker, but it requires much care in the making, and is consequently expensive.

As regards the aggregate, the strongest concrete is made with broken stone or gravel; the size should vary from large sand to small stones, passing a 1-inch mesh, for floors or walls, to 1½-inch or even more for foundations. The cleanliness of the aggregate and the water is most important, as is also the cleanliness and sharpness of the sand. Small sand only, such as would run in an hour-glass, is utterly useless—the sand must not have regular grains, but have about twice as many large particles as small ones. I show you here some specimens of suitable sand and gravel such as are used in reinforced concrete floors, with a sample of the kind of concrete produced when the mixture is one of cement to four of the sand and gravel.

The sand and cement should be in such proportion as to give the most compact mortar, *i.e.* the mortar in which there are the fewest voids. Careful scientific study has not yet succeeded in giving us any simple rule to fix this proportion for different kinds of sand, but 1 of cement to 2 or even 3 of sand give generally the best results.

So with the concrete; the mortar of cement and sand should be a little more than sufficient to fill the voids between the stones or gravel. Usually there is 40 per cent. to 50 per cent. of voids, and 1 of cement to 2 of sand, and 3 or even 4 of broken stone or gravel, makes the strongest concrete.

Now we come to the mixing. It is of course work which can be done by labourers, but not work which can be done without supervision. For good concrete, such as is required in floors, four men should be employed in the mixing. The platform on which the operation takes place should be formed of closely jointed boards. A square frame without bottom or top is placed on the platform and the aggregate is filled in this; the frame is removed and the aggregate spread out in a crater-like form. The required amount of cement—best fixed by weight—is then poured in the centre. Instead of the usual turning over with shovels only, one man turns the mixture over with a shovel and two are engaged in turning it over with a three-pronged rake. The water is only added from the rose of a watering-pot after the second dry turning over, the use of the rake being kept up all the time, and the minimum quantity of water used. No amount of turning over with the shovel only could produce the intimate mixture which the rakes do.

Concrete mixing machines are much used in America and on the Continent, producing very good and uniform results. These machines are rarely seen here. One has frequently seen on a building a lot of concrete mixed up, and left for an hour or so before being set in place. If too stiff, more water was added. Such treatment of the material invites disaster; initial set begins very quickly, and the concrete should be put in position as soon as mixed, and without a moment's delay.

When the concrete is eventually laid on the centreing, or put in the moulds, it should be in thin layers 2 to 3 inches thick, and beaten down with iron beaters very carefully all over. This is essential in order to prevent the formation of voids, and to increase the resistance of the concrete. A visit to any work in reinforced concrete which is being carried out by a specialist would certainly be an interesting and instructive experience for those whose acquaintance of concrete has only been with ordinary foundations and builders' concrete floors.

Having thus briefly reviewed various matters connected with the material, we now turn to the consideration of the strength of the material in place. I beg you will bear with me while I recall some very elementary facts in the behaviour of material under stress, as it is almost necessary for the proper development of the subject.

If we take a small solid cylinder of india-rubber or vulcanite and put pressure on each end, the length is diminished and the diameter is increased. Fig. 1 shows such a cylinder after the pressure is applied.

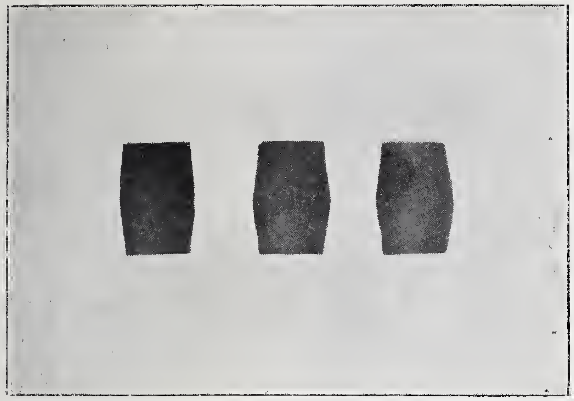


FIG. 1.—SPECIMENS OF VULCANITE CYLINDERS 1-IN. DIAM. AND 2 IN. HIGH, SHORTENED ½ IN. UNDER COMPRESSIVE STRESSES OF 11,286 LBS., 11,956 LBS., AND 12,211 LBS. PER SQUARE INCH RESPECTIVELY.

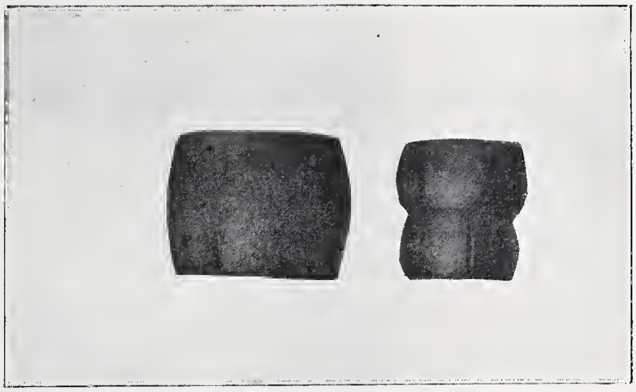


FIG. 2.—SPECIMENS OF WROUGHT IRON SHORTENED UNDER COMPRESSIVE STRESS OF 150,000 LBS. PER SQUARE INCH, 45·3 PER CENT., 43·5 PER CENT. AND 41·5 PER CENT. RESPECTIVELY.

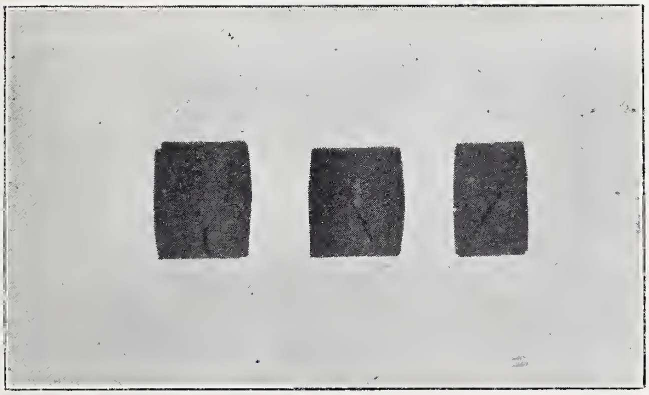


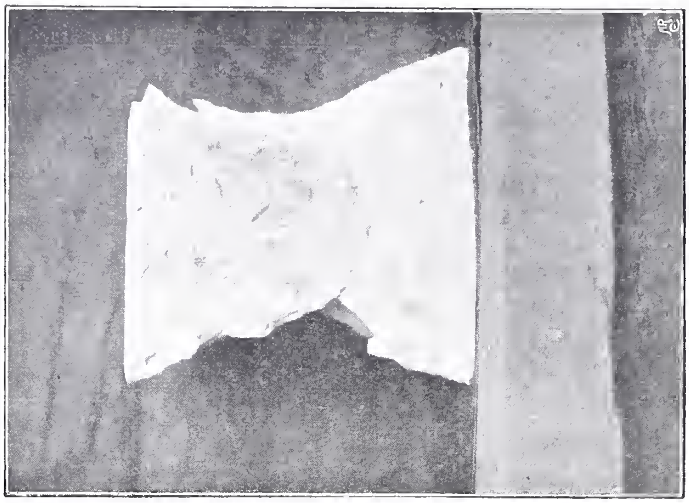
FIG. 3.—CAST-IRON CYLINDERS AND PRISM BROKEN UNDER COMPRESSIVE STRESS.

The internal stress may be pictured to the mind by imagining the molecules of the body as *spherical* before the pressure is applied. When the body is stressed these little spheres become *ellipsoids*—flattened spheres—the diameters being greater of course at right angles to the pressure. The sum of these molecular changes makes up the change in shape of the whole body.

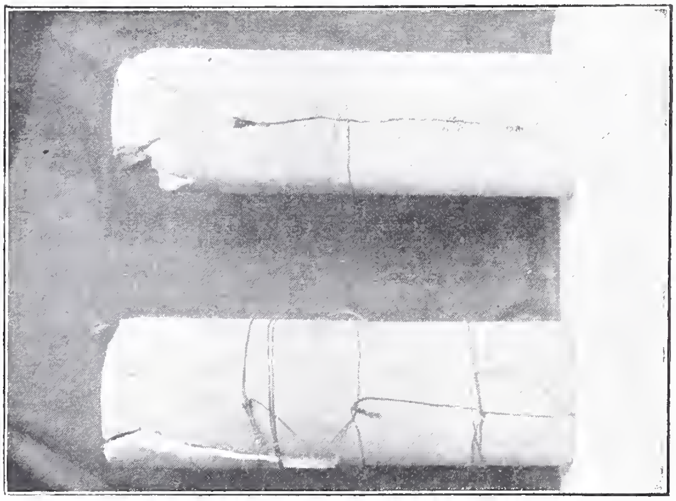
It must not be supposed that because the swelling is greatest in the centre of the length the stress is greatest there. The reason why the ends have not swollen so much in the centre is because the ends are confined by the friction between the bedding surfaces.

No material which we use in building is so perfectly elastic as india-rubber; but we use wrought iron, soft and medium steel, lead, &c., which submit to considerable change of shape before reaching the elastic limit. When compressed beyond that limit they spread out indefinitely, having no ultimate yield point.

Fig. 2 shows the result of compressing solid wrought iron cylinders beyond the limit of elasticity. The metal spreads and increases its diameter or sectional area indefinitely under an increasing load. It is, in fact, a plastic or viscous material. Soft steel behaves similarly.

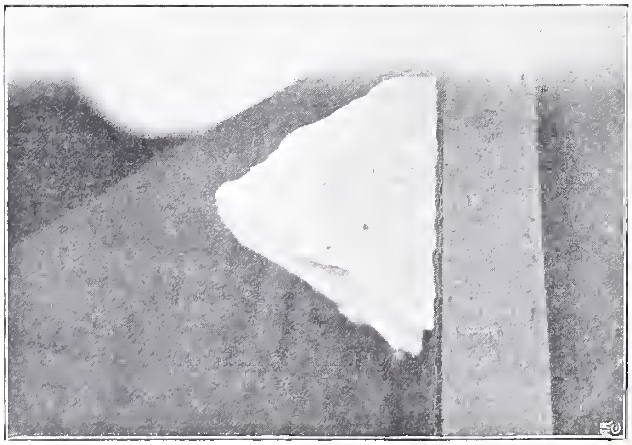


6-IN. STONE CUBE.



BATH STONE, 4 IN. DIAM., 13 IN. HIGH.

FIG. 4.



6-IN. STONE CUBE.

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Now, in a piece of material under stress, within the elastic limit

$$\frac{\text{intensity of stress}}{\text{strain due to it}} = \text{modulus of elasticity};$$

from which we can, knowing the modulus of elasticity of a material, calculate the shortening or lengthening under stress.

The swelling or diminution in a transverse direction may be also calculated by what is known as Poisson's ratio. This is the ratio of the lateral swelling to the longitudinal shortening, or of the lateral contraction to the longitudinal lengthening, according as we are dealing with compressive or tensile stress. For building stones, this varies from 0·091 to 0·345 (tests of American building stones made at the Watertown Arsenal, quoted in Johnson's *Materials of Construction*, p. 645); for steel it is 0·286 (French *Commission des Méthodes d'Essai des Matériaux de Construction*, 1895, vol. iii. p. 6); for lead 0·4282 (French *Commission des Méthodes d'Essai des Matériaux de Construction*, 1895, vol. iii. p. 6); for india-rubber about 0·5.

All our materials change shape under compression, undergoing a shortening of the length and a swelling of the cross section; but brittle materials such as cast iron, hard steel, stone, cement, &c., fail before the swelling is very noticeable by shearing along certain definite planes. Fig. 3 shows some solid cast-iron cylinders broken under compressive stress, in which these planes are very clearly marked.

Prisms of stone broken under similar stress are shown in fig. 4, and in these also we trace the planes before mentioned. These examples deserve careful study. Observe that in the stone cylinders a conical wedge, of which the base is one of the bearing surfaces, is driven into the body of the prism, bursting it outwards, splitting it up into many pieces. If the end bearings are not of the full area of the piece the base of the conical wedge is only of the size of the actual bearing. This is because the lateral friction on the bearing surface prevents swelling and bursting at that section. It has often been said that the use of lead as a bedding in compression tests of stone is bad, as the flowing of the lead splits off the beds. Is it not rather the other way, that the truest value of compressive strength would be got if there were a perfect lubricant on the ends to permit of uniform stress throughout the length of the piece? When we test stone cubes, the increase of strength given by this friction on the ends is very great, and leads to the most erroneous ideas of the strength of the material. The shorter the specimen in proportion to the length the more important is this effect.

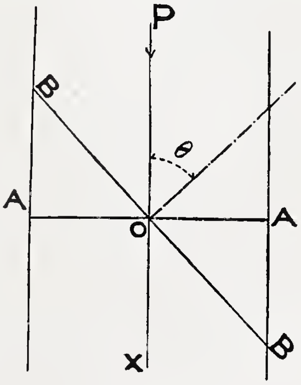

FIG. 5.

In the two cubes in fig. 4 we see the characteristic method of failure of stone, concrete and cement prisms.

Without troubling you with too much in the way of mathematics, we may recall the nature of the internal stress in a prism of material in a state of simple compressive stress.

In fig. 5 let the axis O X be drawn in the direction of the stress P, and let A A be a section normal to this axis. Since the stress is uniformly distributed over A A,

$$\frac{P}{A\,A} = \text{intensity of stress on } A\,A = p.$$

Let B B be another plane at any angle θ with the normal plane A A. The total stress on this plane is (as before) P, but as there is a larger area to resist the stress, the intensity of the stress on B B is less than the intensity on A A.

The intensity of the stress on B B

$$= \frac{P}{BB} = \frac{P}{\left(\frac{AA}{\cos\ \theta}\right)} = \frac{P}{AA} \cos\ \theta = p \cos\ \theta.$$

This stress being oblique to the plane on which it acts may be resolved into normal and tangential components, and we find that

$$p_n = p \cos^2 \theta \text{ and } p_t = p \sin\ \theta \cos\ \theta.$$

p_t is greatest when θ is 45°, and as the greatest tangential or shearing stress is thus on a plane inclined at 45° to the horizon, it might be assumed that shearing would take place on that plane. But there is a *frictional* resistance to slipping on this plane, as the two surfaces are being pressed together. The shear stress along the plane B B is thus

$$p_t - \tan\ \phi\ p_n$$

when $\tan\ \phi$ is the coefficient of friction (ϕ being the angle of repose of the material on itself).

Accordingly

$$p\ (\sin\ \theta \cos\ \theta - \tan\ \phi \cos^2 \theta)$$

is the shearing stress; and this is a maximum on that plane for which $\theta = 45° + \frac{\phi}{2}$ or 45° + half the angle of repose.

This theoretic plane of rupture is about 55 degrees for cast iron, and about 60 degrees for limestone, which agrees fairly with the results of experiments. Thus, because of the effect of end friction being so great, and because of the short length not allowing freedom to shear on planes of this angle, tests on cubes give resistances to compression much beyond what is found for longer prisms.

Such tests, as pointed out by Hodgkinson long ago, should be made on prisms at least 1½ times the width or diameter in height in order to allow of failure in this way.

Now prisms of stone or cement swell (though very slightly) before rupture under compression, and if it were possible to prevent that swelling by applying a lateral force, the material would stand a much greater compressive stress before rupture. This has been investigated theoretically by Professor Perry in his *Applied Mechanics* (p. 345). It has also been proved by experiment by M. Considère, who has communicated the results of his trials to the French Académie des Sciences in a note of the 18th March last. An abstract of his paper appears in the *Génie Civil* for the 30th April, 1904.

M. Considère prepared a large number of solid cylinders of cement of 30 millimetres (1 3/16 inch) diameter and 80 millimetres (3⅛ inch) long. These cylinders were made of cement and sand in the proportions of 300 kilogrammes, and 600 kilogrammes of Portland cement per cubic metre of sand (about 1 of cement to 5 of sand, and 1 of cement to 2·3 of sand respectively). They were tested (at the various ages quoted in the table below) immersed in water, which water was under pressure varying from nothing to 150 kilogrammes per centimetre carré (2,133 lbs. per square inch). They were placed in the box of an hydraulic press, filled with water, and known pressures applied to the water, so that while the cylinders of cement were under compression on the ends, they were also subjected to known compressions all round, which pressures resisted the tendency of the cylinders to swell and burst outwards. To make certain that the pressure of the surrounding liquid produced the same effect as if the cylinders

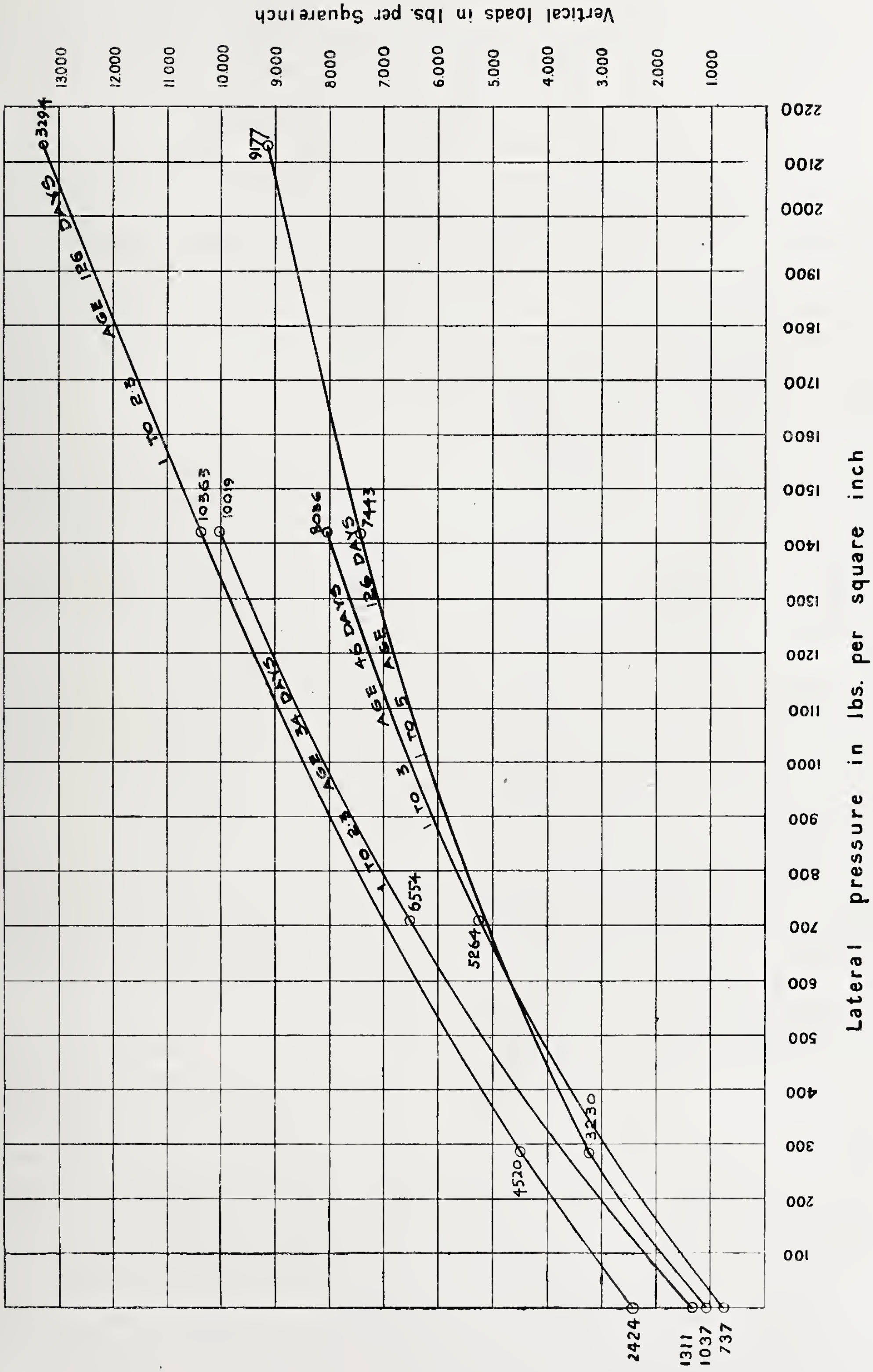
Vertical loads in lbs. per square inch
1.000
2.000
3.000
4.000
5.000
6.000
7.000
8.000
9.000
10.000
11.000
12.000
13.000
Lateral pressure in lbs. per square inch
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
1 TO 2.3 AGE 126 DAYS
1 TO 3 TO 5 AGE 46 DAYS
AGE 126 DAYS
1 TO 2.3 AGE 34 DAYS
13294
9177
10363
10019
8036
7443
6554
5264
4520
3230
2424
1311
1037
737

FIG. 6.

had been tightly bound round by some strong material, they were covered with a thin layer of pure cement and another layer of wax over that, so that the water could not penetrate into the cylinder. The average results of M. Considère's many tests are given in the following table:—

TABLE 1.

—	Weight of cement per cubic metre of sand	Age of the pieces when tested	Ultimate resistance of the cylinders under water pressure amounting to				
			0 kilo	20 kilos	50 kilos	100 kilos	150 kilos
	kilogr.	days	kilogr.	kilogr.	kilogr.	kilogr.	kilogr.
C	300	46	53·2	—	370·1	565·0	—
D	—	126	74·3	227·1	—	523·0	645·2
B	600	34	92·2	—	460·8	704·4	—
A	—	126	170·4	317·8	—	728·6	934·7

Pressures and resistances in kilogrammes per centimetre carré.

The figures put in the form of a diagram with English measures may be more readily understood, and this is done in fig. 6.

The average results of the four series tested are indicated by the letters A B C and D.

The diagram shows that cylinders of cement and sand in the proportion of about 5 to 1 which failed under a load of 1,057 lbs. per square inch at 126 days, when there was no lateral pressure applied, bore 9,177 lbs. per square inch, when there was a lateral pressure of 2,133 lbs. per square inch applied by the water all round—*i.e.* 8·6 times as much. Similarly cylinders of 2·3 of sand to 1 of cement, which failed under a load of 2,424 lbs. per square inch at 126 days, only failed under a load of 13,294 lbs. per square inch, when there was a lateral pressure of 2,133 lbs. per square inch applied all round, or about 5½ times as much.

I am loth to burden this paper with the mathematical investigation of the question, and refer those interested to Professor Perry's and M. Considère's papers already mentioned. These writers base their discussion on Rankine's "Ellipse of Stress," which, as given in Rankine's own works, is not easy to grasp.

In Alexander and Thompson's *Elementary Applied Mechanics*, however, the ellipse of stress is fully explained, and a preliminary reading of part of the last-named book should enable any one to follow Considère's or Perry's reasoning.

Now we cannot surround our columns with water under pressure, but we can produce the same resistance to the swelling and bursting action to which attention has been drawn, at least in concrete columns, by binding the columns with iron or steel wire.

Makers of concrete columns do so bind them, with more or less efficiency, according as the effort to be combated is more or less clearly understood. Fig. 7 shows a Hennebique column, which is, in principle, what is done by other concrete specialists. In all there is, first, the concrete; second, vertical bars of metal, iron or steel; third, bindings of sheet metal or wire.

The method of construction is very simple. A wooden box or mould is made in which the rods are set upright; one of the bindings is then put in, and about 6 inches or 12 inches of concrete well rammed down; another of the bindings is put in and the process repeated.

The special functions of the vertical rods are (*a*) to aid the concrete in resisting the compression due to the load; (*b*) to resist any tensile stress which may be set up in the concrete by unequal loading or by any want of homogeneity in the material itself, which tensile stresses cannot be safely left to the concrete to overcome.

Almost all the makers of reinforced concrete constructions put their trust in the vertical rods of metal, as the special element adding strength to the concrete, if we may judge by the large proportion of metal so used, and by the rules employed to fix the safe load, which rules take no account of the binding.

If there were no initial stresses in the combination the load would be carried by the two materials on the inverse proportion of their rigidities; that is to say, if the concrete were 10 times as easily compressed as the iron or steel, the iron or steel would be carrying 10 times as much per square inch as the concrete.

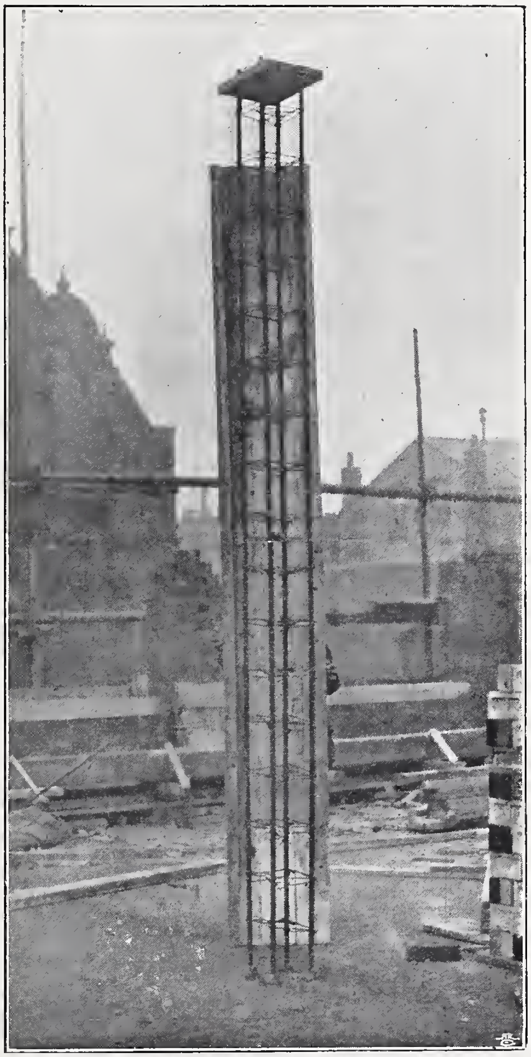

FIG. 7.—FRAMEWORK OF HENNEBIQUE COLUMN, SHOWING VERTICAL RODS AND HORIZONTAL BINDING.

Column 12 feet high and 11 inches square. Four $\frac{7}{8}$-inch bars each 13 feet long, $\frac{3}{16}$-inch diam. wire bindings, 10 inches apart.

But the question is not so simple. It is a well-ascertained fact that concrete setting in air shrinks, while concrete setting in water expands. Columns for buildings always set in air, and consequently the concrete shrinks. As the concrete adheres rigidly to the metal, the concrete is put in tension and the metal in compression—into a state of internal initial stress—before the load comes on.

So strong is this action that the concrete may be at the limit of its tensile strength, and the metal at its elastic limit from this cause alone. No formula has so far been devised which takes this initial stress into proper account.

I know that many builders and some architects believe that concrete swells in the setting. That it does not do so when set in air has been made certain by the careful experiments of MM. Meier and Schumann in Germany, and of the École des Ponts et Chaussées in Paris, confirmed by even more careful and full investigations by M. Considère. Of course, if we use a cement with free lime, which afterwards blows, the concrete will swell, but we are considering the proper use of good material.

The function of the bindings is to prevent lateral swelling and bursting. M. Considère was the first to give this its proper consideration and importance. In almost all columns, except M. Considère's, these bindings are usually about 6 inches to 12 inches apart, showing that the true use of the metal is not yet fully recognised.

Having thus recalled the nature of the work to be done by our concrete and the reinforcement, let me now give the results of some experiments on concrete in compression, armoured and unarmoured, before passing to the consideration of the formula used in fixing the dimensions of columns.

The strength of concrete to resist compression when not reinforced by metal naturally varies within very wide limits, as the factors which enter into the value are very numerous.

The nature of the sand and gravel, the quality of the cement, the proportions of the

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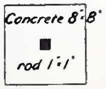
TABLE II.

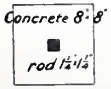
Number	Age in Days	Section	Length, in Feet	Length, / Side	Bars, Plain (P) or Twisted (T)	Actual Breaking-Load, in lbs.	Breaking Load in lbs., per sq. in. of Section	Manner of Failure
1	30	A	17	25·5	P	107,000	1,671	Crushed at end.
2	30	,,	17	,,	T	127,000	1,984	Buckled first; then crushed at end.
3	29	,,	12	18	P	100,000	1,562	do. do.
4	28	,,	12	,,	T	126,000	1,968	Crushed at end; poorly made; crushed portion cut off; the rest bore 150,000 lbs. at 40 days.
5	32	,,	6	9	P	138,000	2,156	Crushed at middle, then sheared off along the rod to the end.
6	31	,,	6	,,	T	133,000	2,078	Crushed at end.
7	31	B	17	25·5	P	136,000	2,125	do. shearing obliquely.
8	35	,,	17	,,	T	154,000	2,406	do. breaking off three feet.
9	35	C	17	,,	P	182,000	2,843	do.
10	34	,,	17	,,	T	167,000	2,609	do. concrete rather rough and poor at that end.
11	31	,,	12	18	T	147,000	2,296	Crushed and split open at end.
12	32	,,	12	,,	P	153,000	2,390	do. do.
13	29	D	6	9	T	158,000	2,468	do. do.
14	31	,,	6	,,	P	244,000	3,812	Crushed at end.
15	35	E	17	20·4	P	215,000	2,150	Broke off clean for 3 or 4 feet at end.
16	35	,,	6	7·2	P	200,000	2,000	Sheared diagonally at end.
17	45	,,	6	,,	T	228,400	2,284	do. do. and broke back for half the length.
18	31	F	12	14·4	T	262,000	2,620	Sheared diagonally near end.
19	29	,,	12	,,	P	257,000	2,570	Crushed at end.
20	28	G	12	,,	T	300,000	3,000	Did not break; exceeded capacity of machine.
21	29	,,	12	,,	P	274,000	2,740	Crushed at end; wedge-shaped piece forced in between rods.

SECTION A



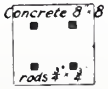
1·56% of Metal

SECTION B



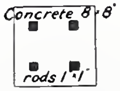
2·44% of Metal

SECTION C



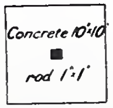
3 51% of Metal

SECTION D



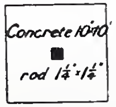
6·25% of Metal

SECTION E



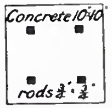
1% of Metal

SECTION F



1·56% of Metal

SECTION G



2 25% of Metal

mixture, the quantity of water used, the amount of ramming given, the age at which it is tested, the condition in which the piece has been kept until tested—all these vary in some way in every piece. Then the size and shape of the test piece also affect the result. Cylinders generally give better results than prisms, and small pieces than large pieces; while the length in relation to the diameter, or least width, and the accuracy with which the piece is set in the testing machine, and the load applied at the true centre of the section, have considerable influence on the result.

Columns of concrete are usually mixed about 1 : 3 or 1 : 4 or 1 : 5, and would rarely be fully loaded in less than two months after making. At that time we might fairly expect, for short prisms of unarmoured concrete, a resistance of at least 2,300 lbs. per square inch for the 1 : 3 mixture, and of 2,000 lbs. per square inch for the 1 : 5, if the concrete had been made by skilled men with good material.

This would only be got in short pieces, not in long columns. The material and the skill employed influence the result very considerably, but with the utmost care the results vary largely.

It is one of the chief gains of metal reinforcement that we are less dependent on either the materials used in the concrete or the skill of the workman. The metal employed is of known strength, and may be so used as to resist the shearing, which is the cause of failure.

Tests of full-size columns are not numerous. Prof. Gaetana Lanza, in the *Transactions of the American Society of Civil Engineers* (Vol. 50, 1903, page 487), gives the following report of certain tests made by him:—

"The composition of the concrete was the same in all cases, viz.: 1 part by volume of Portland cement (Star Brand), 3 parts by volume of sharp, clean, and coarse sand from Newbury Port, Mass., 4 parts by volume of trap rock from Somerville, Mass., which would pass a 1-inch ring sieve, and 2 parts by volume of the same kind of rock which would pass a ½-inch ring sieve, these proportions being such as would a little more than fill the voids in each case.

"The quantity of water used varied from 6 per cent. to 7½ per cent. by weight. The tensile strength of the steel bars used, when plain, varied from 56,000 lbs. to 63,000 lbs. per square inch; when twisted, the strength was about one-third greater.

"Some of the columns were built with one reinforcing rod placed at the centre of the section, and others with four rods placed respectively at the middle parts of the four half diagonals of the section. In the case of the 8 inches by 8 inches columns, the rods terminated ½ inch from each end of the column, while in the case of the 10 inches by 10 inches columns the ends of the rods were flush with the ends of the columns." Table II. gives the details of Prof. Lanza's tests.

The concrete used for these columns was very weak, being of 1 : 3 : 6 only. There was no binding to the columns, and the length in proportion to the side was very great. The ultimate strength reached was very good indeed, having regard to the length and the mixture of concrete, and in fact such as would not be got with ordinary workmen.

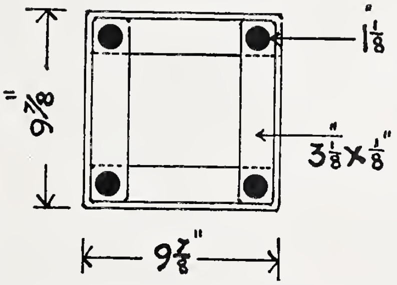


FIG. 8.

Height of column, 10 feet 7 inches; sectional area of metal 4½ per cent. of total area of pillar.

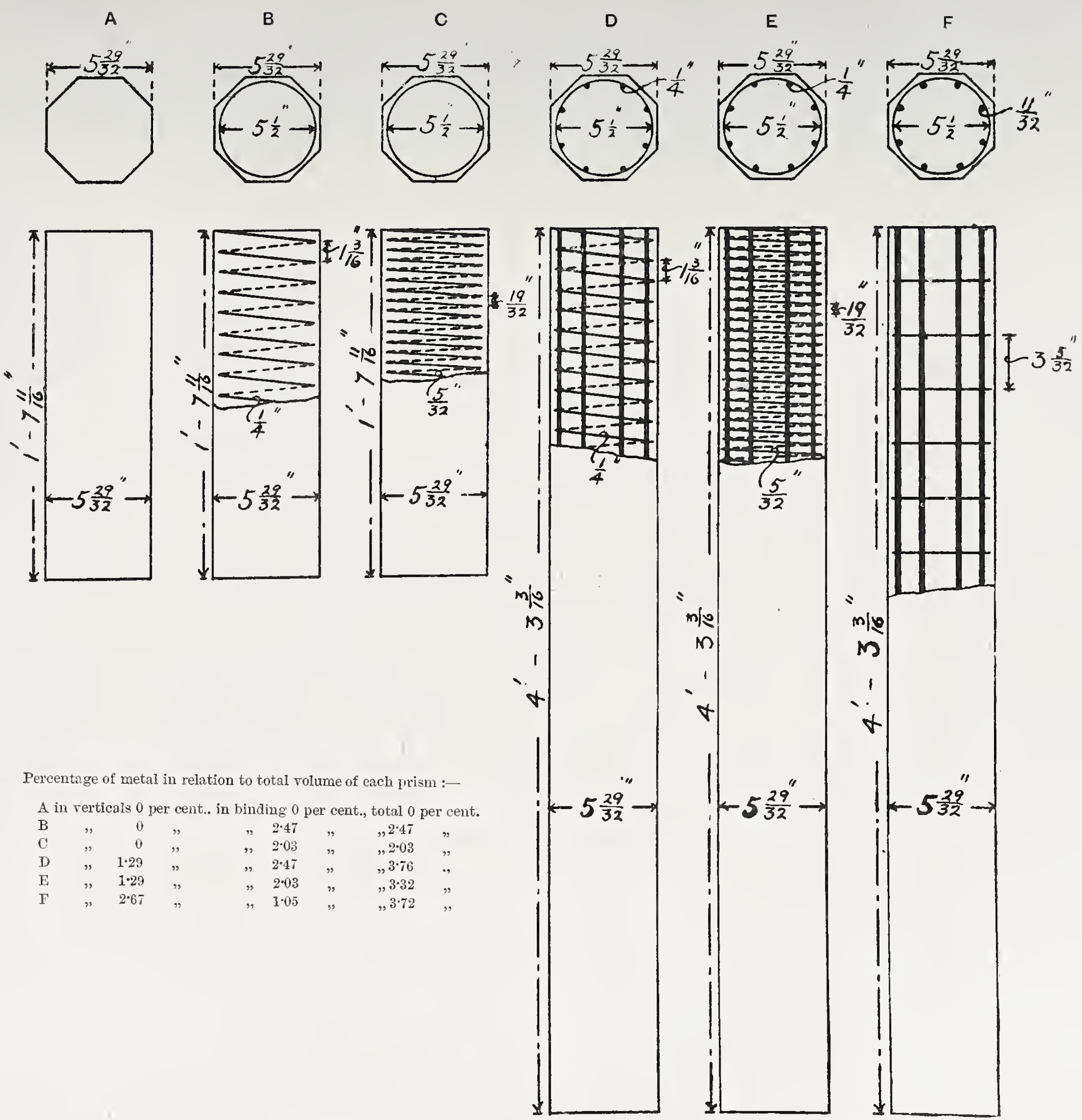
M. Gary, of the École Polytechnique, at Charlottenbourg, tested, in 1899, a pillar of the Hennebique type, of which the section was as in fig. 8.

On that figure I have marked the principal dimensions. The column was of a height

TABLE III.

M. CONSIDÈRE'S EXPERIMENTS ON CONCRETE PRISMS UNDER COMPRESSION.

Pressure in lbs. per sq. inch.	108	250	391	544	696	839	992	1144	1287	0	1287	1664	2041	2417	2796	3173	3669	—
Depression in inches :																		
Column A . .	·0010	·0023	·0033	·0049	·0060	·0092	·0123	—	—	—	—	—	—	—	—	—	—	Rupture at 1,052 lbs.
Column B . .	·0000	·0004	·0012	·0033	·0047	·0058	·0076	·0105	·0131	·0014	·0138	·0267	·0856	·1636	·2523	·2824	—	Rupture at 5,120 lbs.
Column C . .	·0002	·0003	?	·0033	·0049	·0072	·0090	·0121	·0133	·0030	·0119	·0201	·0308	·0692	·1039	·1184	·1587	Did not break at 5,404 lbs.
Pressure in lbs. per sq. inch	483	967	1450	1934	2417	2901	3385	3868	0	1934	3868	4352	—	—	—	—	—	—
Depression in inches :																		
Column D . .	·0096	·0167	·0299	·0456	·0639	·0847	·1146	·1572	—	—	—	—	—	—	—	—	—	Bent at 4,551 lbs.
Column E . .	·0056	·0167	·0304	·0431	·0598	·0786	·0979	?	·0243	·0826	·1612	·2251	—	—	—	—	—	Bent at 5,404 lbs.
Column F . .	·0076	·0167	·0223	·0375	·0522	—	—	—	—	—	—	—	—	—	—	—	—	Rupture at 2,417 lbs.

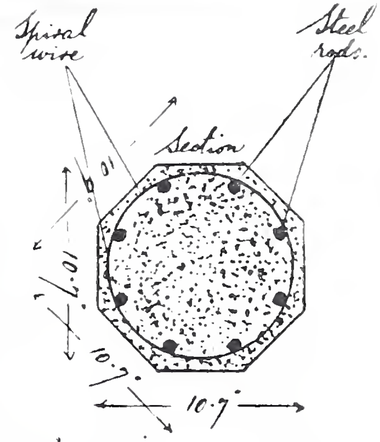
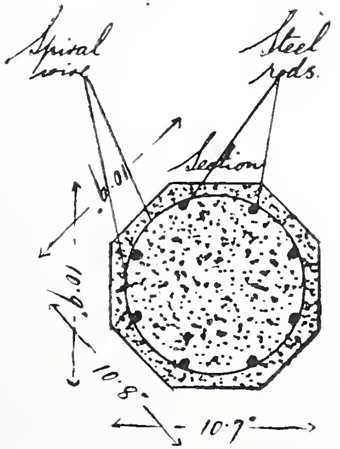


Percentage of metal in relation to total volume of each prism :—

A in verticals 0 per cent.. in binding 0 per cent., total 0 per cent.
B „ 0 „ „ 2·47 „ „ 2·47 „
C „ 0 „ „ 2·03 „ „ 2·03 „
D „ 1·29 „ „ 2·47 „ „ 3·76 „
E „ 1·29 „ „ 2·03 „ „ 3·32 „
F „ 2·67 „ „ 1·05 „ „ 3·72 „

TABLE IV.

RESULTS OF EXPERIMENTS TO ASCERTAIN THE RESISTANCE TO DEPRESSION UNDER A GRADUALLY INCREASED THRUSTING STRESS OF TWO COMPOSITE COLUMNS (STEEL AND CONCRETE) RECEIVED FROM MESSRS. WM. CUBITT & CO.

Test No.	Description	Length	Base Area	Stress in pounds. Depression, inch, at																						Ultimate Stress	Remarks
				28,000	42,000	56,000	70,000	84,000	98,000	112,000	126,000	140,000	154,000	168,000	182,000	196,000	210,000	224,000	238,000	252,000	266,000	280,000	294,000	308,000	322,000		
MM.		inches	sq. inches																							lbs. tons	
2,523	 Spiral wire Steel rods. Section 10·1 10·7 10·7 10·7 *Age two months.* Composite Column. (Steel and Concrete.) 8 Longitudinal Steel rods, ½″ dia., held in position by spiral wire ·21″ dia., 1¼″ pitch, wired to longitudinal rods	120·7	96 Dia. of spiral 9½″ bare, approximately 70 sq. in. area	·005	·010	·016	·023	·031	·039	·047	·055	·063	·072	·082	·092	·103	·113	·123	·132	·144	·161	·187	·213	·234	·258	330,100=147·4	Crushed near one end; spiral wire broken in four places
2,522	 Spiral wire Steel rods. Section 10·1 10·9 10·8 10·7 *Age sixteen months.* Composite Column. (Steel and Concrete.) 8 Longitudinal Steel rods, ¼″ dia., held in position by spiral wire ·12″ dia., 1¼″ pitch, wired to longitudinal rods This column previously tested under Thrusting Stress (see Report, dated 29th April, 1903), and afterwards returned to your works. Column shortened; end made good recently.	90·2	97 Dia. of spiral 9½″ bare, approximately 70 sq. in. area	·008	·016	·025	·033	·040	·047	·053	·060	·067	·074	·082	·090	·098	·105	·112	·120	·130	·146	—	—	—	—	278,100=124·2	Crushed near one end; spiral wire broken in six places … (Failure took place in new concrete)

Initial stress, 15,000 lbs. The depressions were taken at intervals of 14,000 lbs. at the request of Mr. Dunn.

Messrs. Wm. Cubitt & Co.,
258 *Gray's Inn Road,*
London, W.C.

99 *Southwark Street,*
London, S.E., 30*th June*, 1904. } David Kirkaldy & Son.

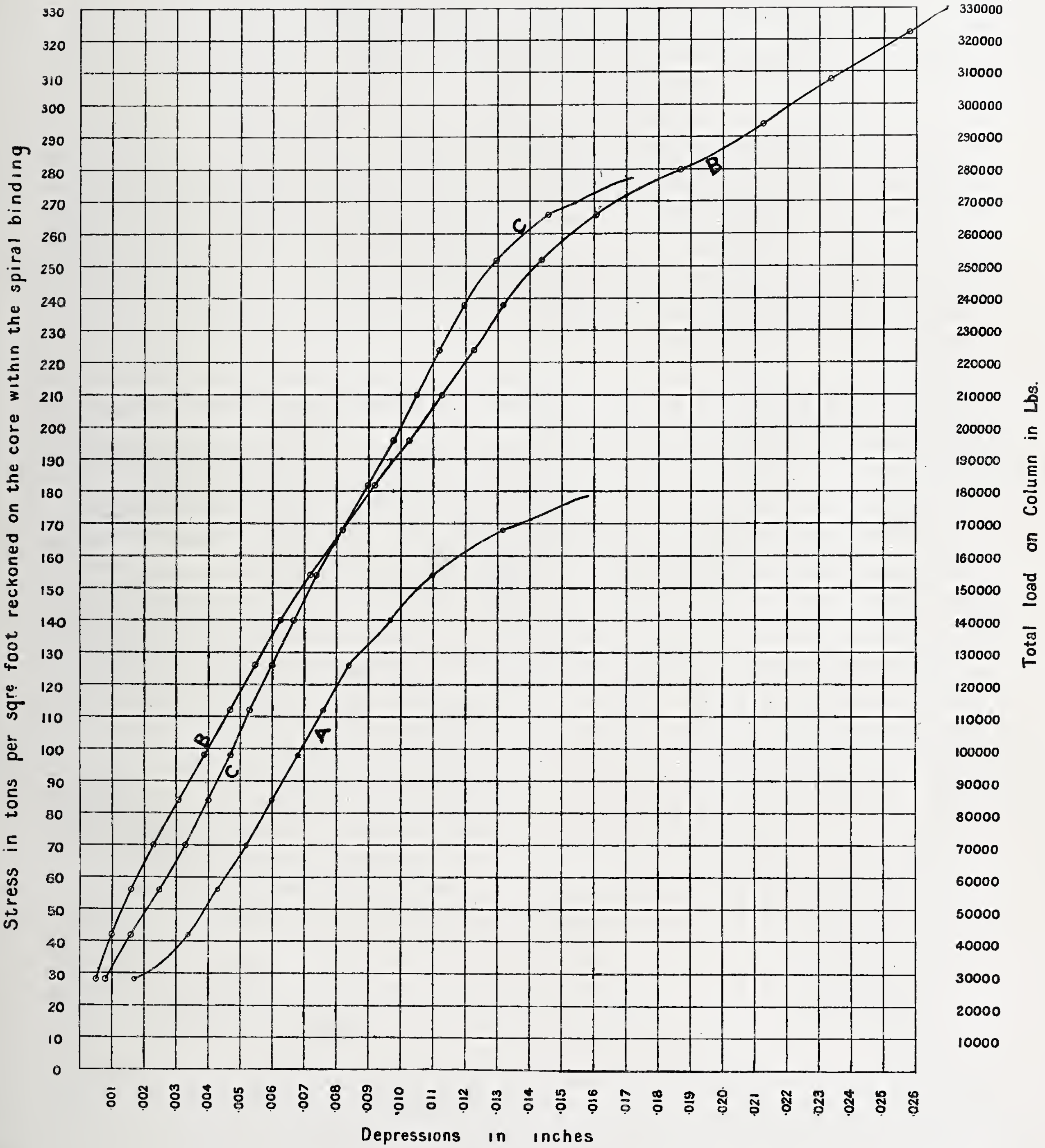


FIG. 9.

Column A. : age two months—diameter within core 9 inches, length 10 feet, spirals ·12-inch diameter, $1\frac{1}{4}$ pitch, eight verticals $\frac{1}{4}$-inch diameter each.
Column B. : „ „ „ „ „ „ „ „ „ „ „ ·21-inch „ „ „ „ „ $\frac{1}{2}$-inch „ „
Column C. : „ sixteen months „ „ „ „ „ „ 7·6 „ „ ·12-inch „ „ „ „ $\frac{1}{4}$-inch „ „

equal to thirteen times the side. The concrete was mixed at 1 to 4, and the age at testing was three months. This pillar broke at 3,641 lbs. per square inch. The four vertical bars curved outwards in the interval between two bindings, which did not fail. At this place the concrete, broken up by oblique fissures, formed two pyramids, the point of each directed towards the other, like the ends of the carbon points in an arc lamp.

The report of the Commission des Voûtes de la Société des Ingénieurs et Architectes Autrichiens, published in 1901, gave the results of tests on prisms of large dimensions, formed of concrete of 1 to 3½, reinforced, not with four bars of considerable sectional area in each, as in the last example, but with a number of smaller vertical bars and much closer bindings of wire. The vertical rods were about 1 per cent. of the section, and failure occurred at a mean resistance of about 3,860 lbs. per square inch at three to four months. At the moment of failure the outer covering of concrete was destroyed and the vertical bars bent.

Vertical fissures heralded the yielding of the cores, which, however, were not wholly broken up.

M. Considère has tested a very large number of prisms reinforced by spiral bindings and vertical rods under compressive stress, the results being given in his papers on "Résistance à la compression du béton armé et du béton fretté," in *Le Génie Civil*, for November and December 1902. From this I have taken the Table No. III. which indicates very clearly the enormous gain in strength due to the reinforcement, especially to the spiral binding.

The present writer in the Journal of the Royal Institute of British Architects for 21st November, 1903, described a column of 9 inches diameter and 10 feet long, tested to destruction, which failed at 2,805 lbs. per square inch. This had failed near one end, the yielding being purely local. After standing some time, the column was severed at the break and the end made good. When two months had expired after this making good, the shortened column (now sixteen months old, except the end part) was tested by Messrs. Kirkaldy, with the results given in Table IV. Note that the percentage of metal was in longitudinal rods ·61 per cent., in spiral wires ·43 per cent.; or 1·03 per cent. in all; these being reckoned in relation to the part within the spiral binding.

If reckoned in relation to the whole volume of column, the total percentage would be in spirals ·29 per cent., in longitudinals ·41 per cent.; or ·7 per cent. in all.

Another similar column, but with a large percentage of metal, kindly made by Messrs. Cubitt & Co., who have executed a number of complete structures on the Hennebique system, was tested at Kirkaldy's Testing Works on 22nd June, 1904.

The particulars of this column and the results of the loading are also given in Table IV. The percentage of metal in relation to the core was, in spirals, ·98 per cent., in longitudinals 2·47 per cent.; or 3·45 per cent. in all. If the percentage is measured in relation to the total volume, including the part outside the spirals, we have ·65 per cent. in spirals, and 1 per cent. in longitudinals; or 1·65 per cent. in all. I have plotted the results of these three tests on squared paper in diagram form, fig. 9, by which the relative strengths may be more readily seen.

In these three tests the failures were gradual and purely local; the columns were uninjured and showed no sign of distress, save for about a length of 12 inches near the break, as may be seen from the photographs in figs. 12 and 13, and in the paper previously mentioned. In the last case the local failure might arise from the fact that all the concrete used was mixed at once, and as the making of the column took two hours, and a rather quick-setting cement was used, it is probable that the concrete had begun to set before it was put in the mould at the end where failure occurred.

In the case of the column of Table IV. which was tested at sixteen months, the end which crushed was the end made good, which end itself was only two months old.

A better result would have been attained with a larger percentage of metal in the spirals. Wire of a greater diameter than $\frac{3}{16}$ is difficult to bend, but flat ribbons of a larger sectional area than $\frac{3}{16}$ might be used instead.

Another factor in the question is the rate of loading. In tension tests of steel, variations in the time rate of loading make practically no difference in the results. In less homogeneous materials, where the particles have to rearrange themselves under stress, the time rate has more influence; but I am unable to say how much greater the strength might have been had the load been more slowly applied. A single experimenter is sadly handicapped by the cost, and little can be learnt from a few tests.

I gather from Considère's experiments that greater strength might also be got by repeated loadings well below proof load; but here, also, opportunity did not enable me to experiment.

I will now give the rules which various constructors use to determine the necessary sizes of reinforced concrete pillars to carry given loads.

M. Tedesco (see *Le Ciment* for January 1900) provides 6·3 square inches of concrete, and about ·0309 square inches of metal in the section of a pillar per ton of load.. This rule has the merit of simplicity. For instance, a pillar is required to carry thirty tons. The sectional area must then have thirty times 6·3 or 189 square inches of concrete; for a square section we should require a pillar 13¾ inches by 13¾ inches. It would be reinforced by thirty times ·0309 square inches of metal, or ·927 square inches; say, with 4 rods each, ·231 square inches in area, or $\frac{9}{32}$ inch diameter. Roughly this is about ½ per cent. of metal.

Should it be desired to make a column very long in proportion to the diameter, M. Tedesco increases the quantity of metal up to 1½ per cent. of the total section. He thinks that a mixture of 1 of cement to about 5½ of aggregate (*i.e.* about 420 lbs. of cement per cubic yard) is sufficient for short columns, but recommends that the mixture should be richer in cement in proportion as the length of column increases. For similar reasons he recommends that columns of *small* section should be of richer mixtures.

In what is known as the Hennebique formula it is assumed that when the concrete is loaded to 355 lbs. per square inch, the metal is at the same time loaded to 14,220 lbs. per square inch. This gives the simple formula

$$P = p'\Omega + \tau'\omega.$$

Where P = the total safe load,
Ω = the total sectional area of the pillar,
ω = sectional area of the vertical reinforcing rods.
p' = allowed compression per square inch (in lbs.) on the concrete = 355 lbs. per square inch,
τ' = allowed compression per square inch (in lbs.) on the metal = 14,220 lbs. per square inch.

In M. Hennebique's work the mixture of concrete is usually 448 lbs. of cement to the cubic yard of aggregate, or in volume about 1 to 4 when the best quality of cement is used; this gives 586 lbs. (5¼ cwts.) or 1 cubic yard of concrete in position and rammed.

In diagram [fig. 9A], the results of what is usually known as Hennebique's column formula have been plotted for various sizes of columns.

To use the diagram to find the size of column to carry a load of, say, 80 tons, find the load in tons on the left hand margin and trace the corresponding horizontal intersection with any dotted raking line. Select a suitable section in relation to the height, say, 15 inches by

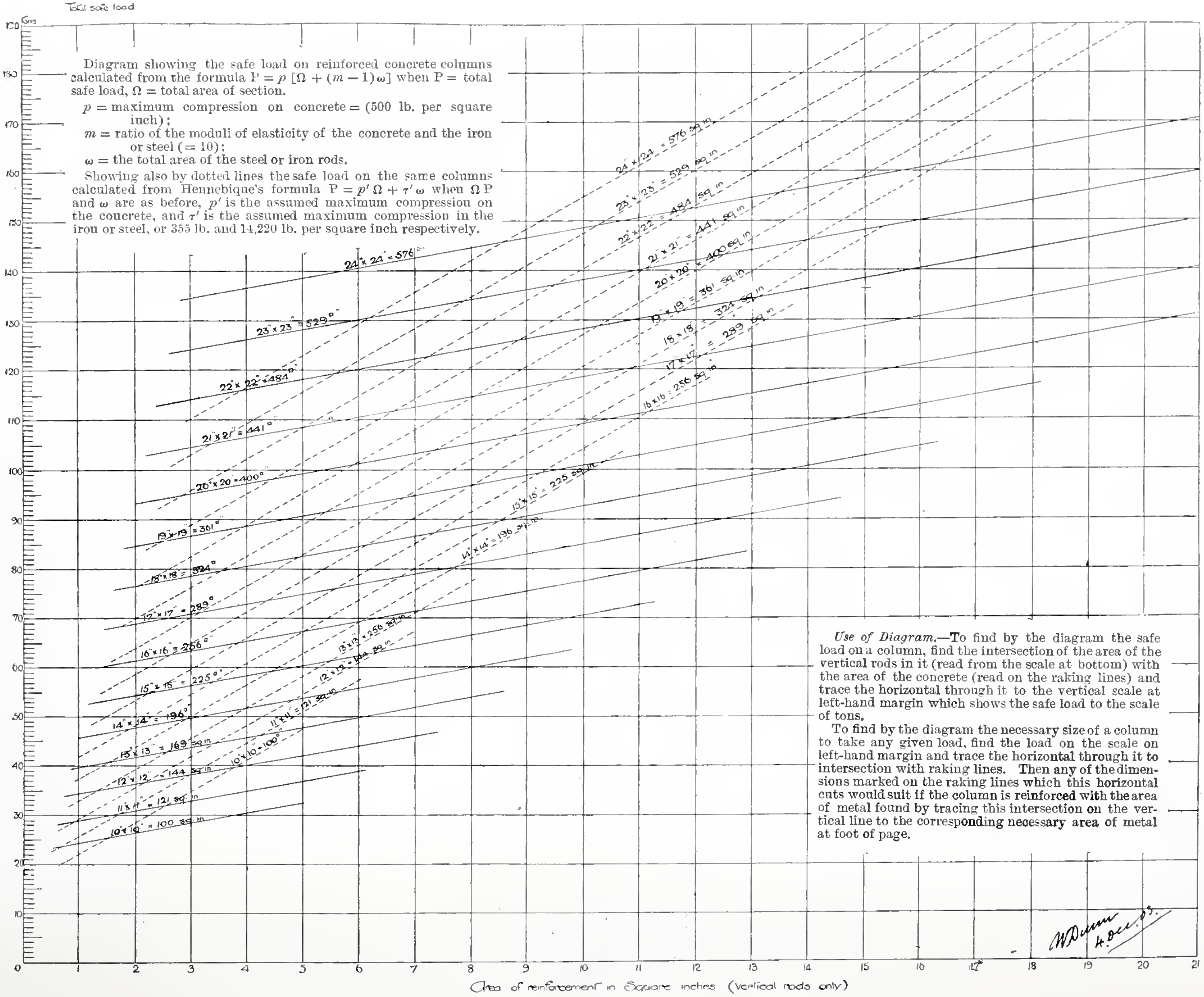


Diagram showing the safe load on reinforced concrete columns calculated from the formula $P = p\,[\Omega + (m-1)\,\omega]$ when P = total safe load, Ω = total area of section.

p = maximum compression on concrete = (500 lb. per square inch);

m = ratio of the moduli of elasticity of the concrete and the iron or steel (= 10);

ω = the total area of the steel or iron rods.

Showing also by dotted lines the safe load on the same columns calculated from Hennebique's formula $P = p'\,\Omega + \tau'\,\omega$ when Ω P and ω are as before, p' is the assumed maximum compression on the concrete, and τ' is the assumed maximum compression in the iron or steel, or 355 lb. and 14,220 lb. per square inch respectively.

Use of Diagram.—To find by the diagram the safe load on a column, find the intersection of the area of the vertical rods in it (read from the scale at bottom) with the area of the concrete (read on the raking lines) and trace the horizontal through it to the vertical scale at left-hand margin which shows the safe load to the scale of tons.

To find by the diagram the necessary size of a column to take any given load, find the load on the scale on left-hand margin and trace the horizontal through it to intersection with raking lines. Then any of the dimensions marked on the raking lines which this horizontal cuts would suit if the column is reinforced with the area of metal found by tracing this intersection on the vertical line to the corresponding necessary area of metal at foot of page.

FIG. 9A.

15 inches, then trace the vertical corresponding to this intersection to the scale at the foot of the diagram and read the necessary area of metal to be used in the vertical rods—in this case 7 inches, or rather more than 3 per cent. This would be supplied by four rods $1\frac{1}{2}$ inches diameter each, one at each corner.

We might, instead of using a 15 inch by 15 inch section, use a 14 inch by 14 inch section; then we would require about 7·7 square inches in the vertical rods; or we might take a 16 inch by 16 inch section, requiring 6·2 square inches, as found from the diagram.

If it be required to find the safe load which may be put on a square column of which the size is known, and in which there is any given section of metal, find the sectional area of metal on the scale at foot of diagram and trace it upwards to intersection with the raking dotted line corresponding to the given sign of the column.

Trace the horizontal through this intersection to the scale of tons at the left hand side of diagram and read the corresponding safe load.

(The foregoing assumes that the loading is central, and that the column is of ordinary proportion. From Lanza's experiments, given in table, and from Considère's investigations, it appears that up to, say, 18 diameters in height, there is no material reduction in strength due to increase in length.)

This Hennebique formula assumes a ratio between the elasticity of the metal and the concrete, which does not at all accord with the results of experiment.

It assumes that the concrete is shortened forty times more than the metal under similar stresses per square inch.

The ratio between these shortenings—the ratio between the coefficients of elasticity of the two materials—has been investigated by MM. Coignet and Tedesco, who found that the highest value of this ratio, about 21, which we will call m, corresponds to the poorer concrete, and the lowest value, about 7, to the richer quality.

(Poor concretes we should naturally expect to yield more than strong concretes. Put in other words, the poorer the concrete the greater the share of the load borne by the iron.)

M. Tedesco concludes that the value of this ratio m should be taken between 10 and 20 according as the concrete is mixed at from 1 to 2 to 1 to 4. This would be the ratio at the end of about six weeks; with increase of age, the concrete would probably bear more of the load and add to the factor of safety.

This ratio m lying between 10 and 20 gives us the more rational formula for the strength of reinforced concrete columns. Multiply the sectional area of the vertical reinforcement by the ratio m, and add this increased fictitious sectional area to the area of the concrete; the sum, multiplied by the allowable safe load on the concrete, will give the safe load on the pillar. The actual safe load on the steel will be m times as much per square inch as on the concrete.

The rational formula is given by M. Christophe in his book *Le Béton Armé.* Let Ω, ω, p', τ' have the same significance as before, and let E′ represent the coefficient of elasticity of the concrete in compression, and E the coefficient of elasticity of the metal.

The net section area of the concrete will be $\Omega - \omega$.

The total load P will be borne thus:

$$P = p'\Omega + \tau'\omega.$$

The shortening of the concrete and the metal being equal, we have

$$\frac{p'}{E'} = \frac{\tau'}{E} \therefore p'\frac{E}{E'} = \tau'$$

If we indicate the ratio $\frac{E}{E'}$ by the letter m, we may write

$$P = p'(\Omega - \omega) + p'\, m\, \omega$$

which may also be put

$$P = p'[\Omega + (m-1)\omega]$$

also

$$\tau = mp'.$$

M. Christophe would allow a safe load on the concrete of 355 to 568 lbs. per square inch, according to the nature of the structure and degree of security required, and takes $m=10$. Taking the lower limit of 355 lbs., I have plotted the results in full lines on the diagram, fig. 9A, which may be used as already described, save that the full lines are to be used instead of the dotted lines. As before, these figures apply only to columns of moderate height in proportion to the diameter or least side.

In a circular dated 16th April, 1904, the Prussian Minister of Public Works sent to the building authorities under his jurisdiction certain regulations for the use of reinforced concrete in buildings, in which it is required that concrete in columns shall not be stressed beyond one-tenth of its breaking strength, and gives the following formulæ for calculating the stresses in columns, with central loads. In that circular the ratio between the elasticity of the steel and the concrete is fixed at 15.

$$P = p'(\Omega + 15\,\omega)$$

$$p' = \frac{P}{\Omega + 15\,\omega}$$

$$\tau' = \frac{15\,P}{\Omega + 15\,\omega}$$

For eccentric pressure, and for long columns, a proper reduction is to be made in the loading, in accordance with the usual formulæ for such pieces, and in all cases the bindings shall not be spaced further apart than thirty times the diameter of the upright rods.

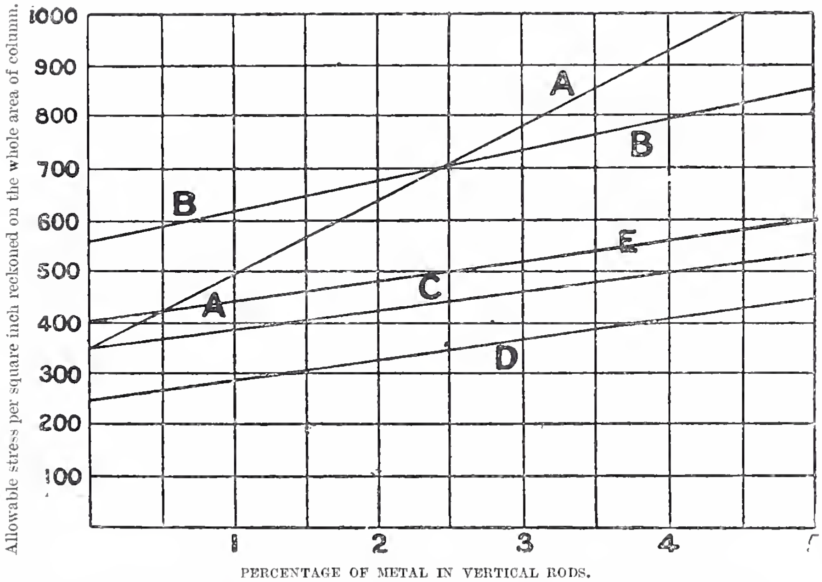


Diagram showing the allowable stress per square inch on concrete columns with different percentages of reinforcement according to different formula.

A, Hennebique's formula.
B, Christophe's upper limit.
C, Christophe's lower limit.
D, Prussian Government regulations for concrete which crushes at 2,500 lbs. per square inch in small cubes.
E, Marsh's formula.

FIG. 9B.

The official Prussian formula, given above, is the rational in the simpler form, in which the area of the concrete is taken as the gross area of section, without deducting the area occupied by the vertical bars (a method sufficiently accurate when the percentage of reinforcement is small), and with the ratio of the elasticity of steel and concrete taken, not at 10 as Christophe recommended, but at 15. From recent American experiments, carefully made, it appeared to be about 12 at a stress of 600 lbs. per square inch. The ratio varies with the stress, as the modulus of elasticity of concrete, unlike that of steel or iron, is not constant at all stresses within the elastic limit.

The stress per square inch of sectional area of column allowed by the three rules may be readily compared in fig. 9B.

To find from this figure what safe load may be put on a concrete pillar armed with any given percentage of metal, find the number corresponding to the percentage on the scale at base, trace the vertical through this number to the intersection with the raking line of the formula chosen, and read on the intersection of horizontal through this point, with the scale at the side, the allowable load per square inch of section. As will be seen, the authors vary much in their ideas of what is a safe load.

The foregoing formulæ apply to columns in which the vertical rods are united by horizontal bindings at frequent intervals.

These bindings fulfil an important function in keeping the rods from bending outwards and resisting the swelling and consequent failure of the concrete. The binding does not enter into the formula, however, which assumes that the only effect of the metal reinforcement is supplied by the vertical rods, which add their resistance to compression to that of the concrete.

(In an indirect way, the binding is relied on to enable rods and concrete combined to reach the strength assumed.)

These rules may be said to have stood the test of time, and to be safe for good workmanship and materials of the mixture specified. But they do not represent correctly the state of affairs. For cement concrete set in air (as all columns are) shrinks in the setting if sound cement is used; in shrinking it draws the metal rods with it, and, shortening them, compresses them.

This shortening, as determined by experiments on prisms of mortar, of 1 of cement to 2·3 parts of sand, follows a fairly regular line. From trials made in 1902 at the École des Ponts et Chaussées, according to a programme arranged by the Commission on Armoured Concrete, on concrete composed of 300 kilos of cement to 0^{m3} 800 of gravel of 25mm., and 0^{m3} 400 of sand, it appears that the shrinkage of the concrete had imposed on the metal, in pieces of the dimensions in fig. 10, a compression of 6,520 lbs. per square inch; and, in pieces of the dimensions in fig. 11, a pressure of 10,000 to 14,000 lbs. per square inch.

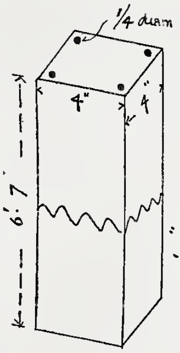


FIG. 10.

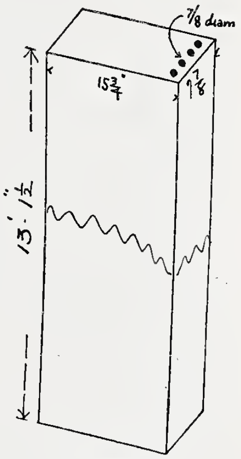


FIG. 11.

This compression in the rods is accompanied by a corresponding tension in the concrete, which would be equivalent to the breaking load in pieces not reinforced.

So far no formula has been devised which takes proper account of these facts.

We now come to columns of hooped concrete. M. Considère, who has given so much study to this particular type, has formulated rules by which the strength may be estimated. He thinks that the ultimate resistance of a hooped column exceeds the sum of

(1) The resistance to crushing of the concrete not reinforced.
(2) The resistance of the longitudinal rods stressed to their elastic limit.
(3) The resistance of imaginary longitudinals of which the volume is equal to 2·4 times that of the spiral reinforcement, also stressed to the elastic limit.

For the column tested by the writer and described in the R.I.B.A. Journal for 21st November, 1903, we proceed to find the probable breaking stress by M. Considère's rules, as follows:—

The proportion of the volume of the vertical rods to the volume of the concrete being ·0061, the proportion of the spiral wire being ·0043, and the limit of elastic strength of the steel being 37,000 lbs. per square inch, the ultimate strength of the column per square inch *exceeds*

(1)	The resistance of the concrete, say . . .	2,000	lbs. per square inch.
(2)	,, longitudinals ·0061 × 37,000=	381·84	,,
(3)	,, spiral 2·4 × ·0043 × 37,000=	225·7	,,
		2607·54	,,

This column bore 2,805 lbs. per square inch at two months. (In these calculations the covering of concrete outside the spiral wire is neglected, as it has no influence on the strength.)

When shortened and again tested at the age of sixteen months [fig. 12] it bore 4,373 lbs. per square inch.

In the column aged two months [fig. 13], detailed in Table 4, the proportion of the volume of the vertical wire to the hooped volume of the concrete was ·0247, and of the spiral ·00985, the steel being of the same quality as before, and capable of bearing 80,000 lbs. per square inch before rupture. Accordingly the ultimate strength per square inch should exceed:—

Strength of concrete . . . . .=	2,000	lbs. per square inch.
,, longitudinals ·0247 × 37,000=	876·68	,,
,, spirals 2·4 × ·00985 × 37,000=	913·9	,,
	3790·58	,,

It failed at 5,190 lbs. per square inch, reckoning the area resisting the pressure at the part within the spiral only.

M. Considère considers that a factor of safety of about 3·7 should be sufficient when these rules are used. They gave with fair accuracy the strength of the members in an experimental bowstring girder bridge of 65·6 feet span of hooped concrete, which was made and tested to destruction by M. Considère. Failure occurred in that bridge by the yielding of a compression member, the stress at the moment of rupture approximating fairly closely to the calculated ultimate resistance of the piece as found by the formula.

I have described two kinds of columns, one in which the vertical reinforcement is relied on to add to the resistance—the kind made by nearly all the concrete specialists—and the other in which the spiral binding forms the principal source of strength. I consider the latter the more scientific construction; but there are other considerations affecting the question which we may glance at.

The vertical reinforcement has usually heavy rods which are sufficiently stout to stand upright in the mould without requiring much in the way of temporary securing. The ligatures or bindings are put on at the top, grouped together, and as the wooden mould is gradually closed up, and the ramming in of the concrete gradually done, each ligature is dropped into its position as required.

As the metal is much more expensive than the concrete—resistance for resistance—it follows that the less the percentage of metal the cheaper the column. But there is another factor—the amount of labour required. The column with spiral binding requires less metal to give the same resistance, but the cost of the labour is more. In those I made and tested the reinforcement was so slight that the vertical rods and the spirals had to be bound with thin wire at nearly every intersection to keep it all in place, thus adding materially to the cost. It had to be put in the one piece in the complete mould, and the filling and ramming had to be done from the top. This means that the concrete was not so compact as it would have been had the ramming been done as the mould advanced in height. But my object in this paper is more to call attention to the scientific principles involved, and to show how columns may be made in accordance therewith, than to weigh all the merits or demerits of either system.

To sum up, concrete not reinforced is a material of very variable strength; reinforcement by steel or iron gives us a material much less variable. In hooped concrete, especially, we have a combination of which we can fairly well predict the power; there is no reason to fear sudden failure, as long before the ultimate resistance is reached we have ample warning by the flaking off of the outer covering, and strength could be added by increasing the hooping spirals. Such a column, moreover, will submit to a considerable bending before failure, and is thus more capable of resisting the secondary stress due to eccentricity of loading and slight settlements. The *Engineering Record* of 8th October last gives some most interesting tests made in the presence of Professor Greene of the University of Michigan on beams made with the Kahn system of reinforcement. In these tests beams of concrete 12 inches deep, 16 inches wide at top, and 8 inches wide at bottom, reinforced with 1½ to

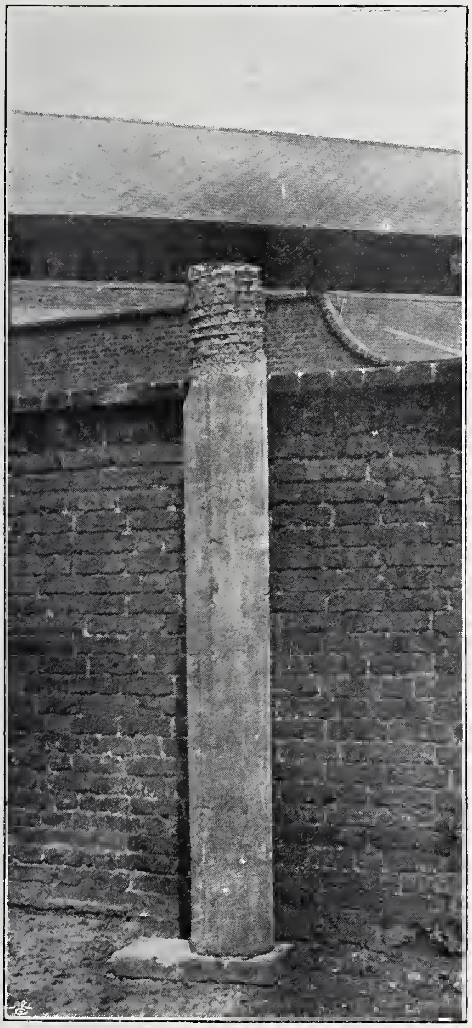


FIG. 12.—COLUMN AGED 16 MONTHS, AFTER FAILURE.

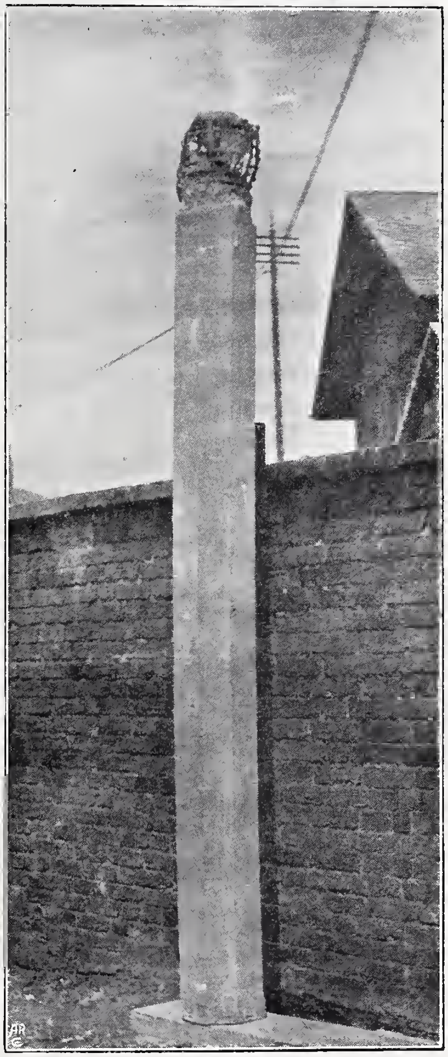


FIG. 13.—COLUMN AGED TWO MONTHS, AFTER FAILURE.

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2 per cent. of metal, when tested on 14-feet 6-inch spans, deflected 24 inches before rupture under loads of 45,000 to 47,000 lbs., uniformly distributed. The photographs of the bent beams which accompany the article prove that concrete of good material, and properly reinforced, does not fail suddenly, and is as flexible as steel.

How reinforced concrete would resist fire, and how far it would deteriorate with the lapse of time by the rusting of the steel in the concrete, are questions which may be answered here. From all the reports on the Baltimore fire, where as intense heat was experienced as will ever occur, the reinforced concrete constructions appear to have stood best. Concrete and iron or steel expand at about the same rate under changes in temperature, and the permanence of the concrete covering in fires is no doubt due to this.

There is now no doubt that iron or steel buried in ordinary concrete remains uninjured for generations. Pieces of iron have been found in concrete made hundreds of years ago, practically untouched by rust.

When an architect decides upon adopting reinforced concrete for a structure, or part of it, he will probably put the work in the hands of one of the many concrete specialists, who makes his own calculations for the strength of the members, and arranges the details of the construction according to his own ideas. But as the responsibility must always in some measure lie with the architect, he will naturally want to check the specialist's work, particularly when the contract has been let in competition, and there is an object in the specialist endeavouring to reduce cost to a minimum.

These notes may be of some slight service to those who find themselves in charge of reinforced concrete work, and may help to stimulate interest and belief in a method of construction in which this country lags behind her sister nations.

I am greatly indebted to Messrs. David Kirkaldy & Sons for the use of the specimens I have chosen as illustrations in figs. 1, 2, 3, and 4. Messrs. Kirkaldy have a splendid collection of examples of the highest interest to Architects, and it is a pity that it is so little visited by them. I also wish to express my obligation to Messrs. Cubitt & Co., who have most generously helped by making the columns tested and by discussing many questions with me.

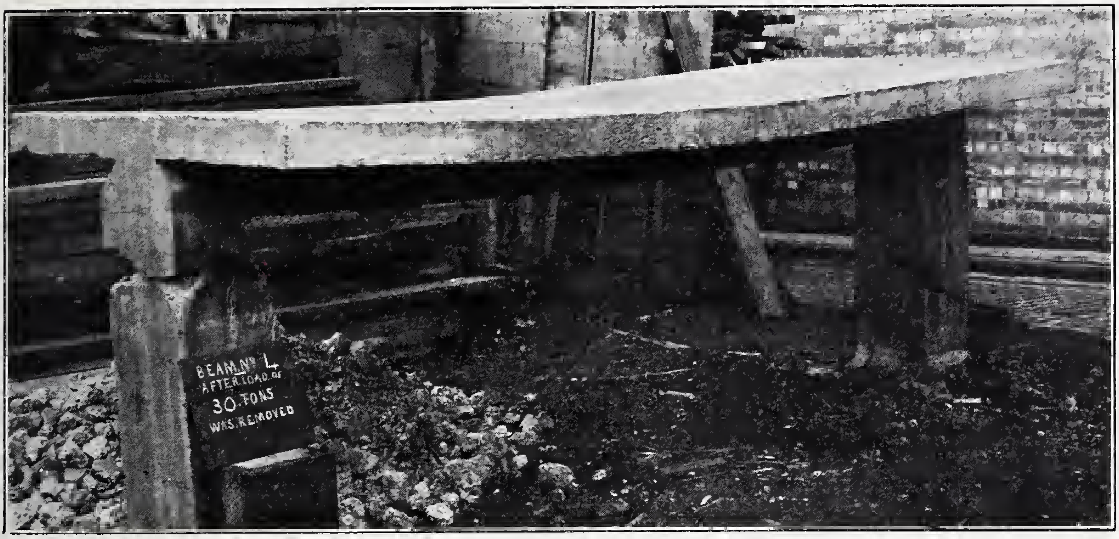


FIG. 5.—TEST OF HENNEBIQUE BEAM [p. 52].

MONOLITHIC CONSTRUCTIONS IN HENNEBIQUE'S FERRO-CONCRETE.

By L. G. Mouchel.

Read before the Royal Institute of British Architects, 21st November 1904.

Gentlemen,—

I CONSIDER it a great honour to have been invited by the President and Council of your illustrious Institute to come before you to-night to say a few words on the subject of ferro-concrete. I realise that this honour is not due to my merits; but only to the fact that it has been my fate to be the pioneer of the new material in Great Britain. This work of initiation has been, I confess, an arduous one; still, I frankly admit that the task has not been without its compensations, and not the least of them has been the privilege which it has procured me of coming in contact with many English architects and engineers whose courtesy and kind support have been a precious encouragement to me.

I meant at first to assume that ferro-concrete was a subject quite familiar to all of you, and to limit my effort to the description of one of the buildings erected on the Hennebique system, and then to show you a few pictures of ferro-concrete constructions. But I have yielded to advice, and have treated the subject as if it were entirely new to all of you.

Concrete has a high co-efficient of resistance to compression stresses, while its resistance to tensile and shearing stresses may for all practical purposes be considered *nil*. Steel, on the contrary, offers great resistance both to tensile and shearing stresses.

From those well-known properties of the two materials arose the idea of making use of one in order to complete or correct the shortcomings of the other. There remained to be found the most effective and economical method of combining the two materials in a structure; and, to make them work simultaneously and harmoniously, I mean to use concrete wherever there is compression, and to meet the shearing and tensile stresses where they occur, by means of iron or steel.

Therefore, if we compare a ferro-concrete beam to a rolled steel joist, as per fig. 3, the steel rods placed in the lower part of the former represent the line of traction which, in the

TEST OF AN ARMOURED CONCRETE COLUMN.

By W. Dunn.

In *Le Génie Civil* for November and December 1902 M. Considère, Inspecteur-Général des Ponts et Chaussées, in France, published an exceedingly interesting and valuable series of articles on the resistance to compression of armoured concrete columns. In these articles he discusses the theory of resistance and gives the results of numerous experiments on prisms or columns of plain concrete; of concrete armed with longitudinal wires, and bound with wires at intervals in the manner usually adopted by the makers of armoured concrete constructions; and of concrete having longitudinal wires bound with a continuous spiral wire wound round the longitudinal wires. His experiments, made on pieces of octagonal section about 5½ inches to 6 inches across and 1 foot 7¾ inches to 4 feet 3 inches long, show clearly the enormous gain in resistance due to the use of the spiral wire; a gain which theory certainly leads us to predict. M. Considère gives full particulars of the materials used and other details; but these need not be quoted here, save to note that his small, carefully-made specimens bore compressive stresses as high as 2·8 to 3·55 tons per square inch, or 403 to 511 tons per square foot, before total failure.

The construction of armoured concrete columns, viewed in the light of M. Considère's researches, seemed to the writer of great practical interest, and when Messrs. Cubitt & Co. kindly offered to make and test a full-size column such as would be used in a building, he gladly accepted the offer.

The drawing, fig. 1, shows the construction of the column. There were eight vertical wires, ¼ inch diameter and of the full height of the column—10 feet—bound round by a continuous spiral wire ⅛ inch diameter full and 227 feet long. This wire was first wound closely round a drum, and was made to spring out exactly to the required pitch of 1¼ inch (the wireworker had no difficulty in arranging this). The wires were of mild steel, and the vertical and spiral wires were bound together at the crossings with fine wire to keep them in position while the column was being made.

The framework being ready, it was placed in a deal mould of an octagonal section. Sufficient concrete was then put in to make a layer of about 6 inches thick; this was well rammed down by a wooden rammer of about 8 inches diameter at the end. The mixture of the concrete is given in the test sheet which follows (1 of Portland cement to 2 of Leighton Buzzard sand and 2½ of pea gravel). The column was kept in the mould for five days, and was then removed and kept in wet sawdust for a further period of fifty-six days. It was then taken to Messrs. Kirkaldy's Testing Works in Southwark, and tested with the results given in the Table. The column was placed in the machine horizontally, but in order to eliminate as far as practicable the effect of bending stress due to its own weight, a load of one-half that weight and acting upwards was slung from the centre of the column.

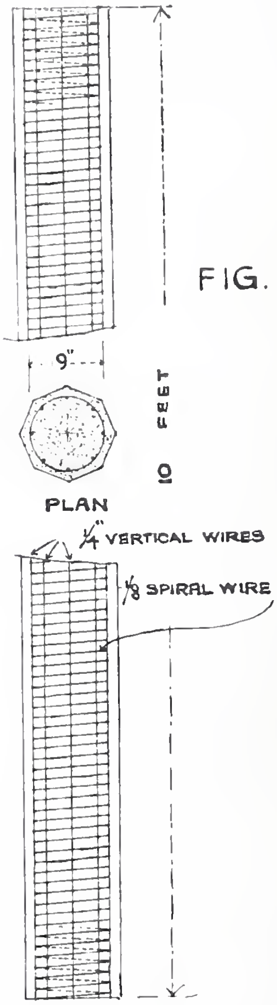
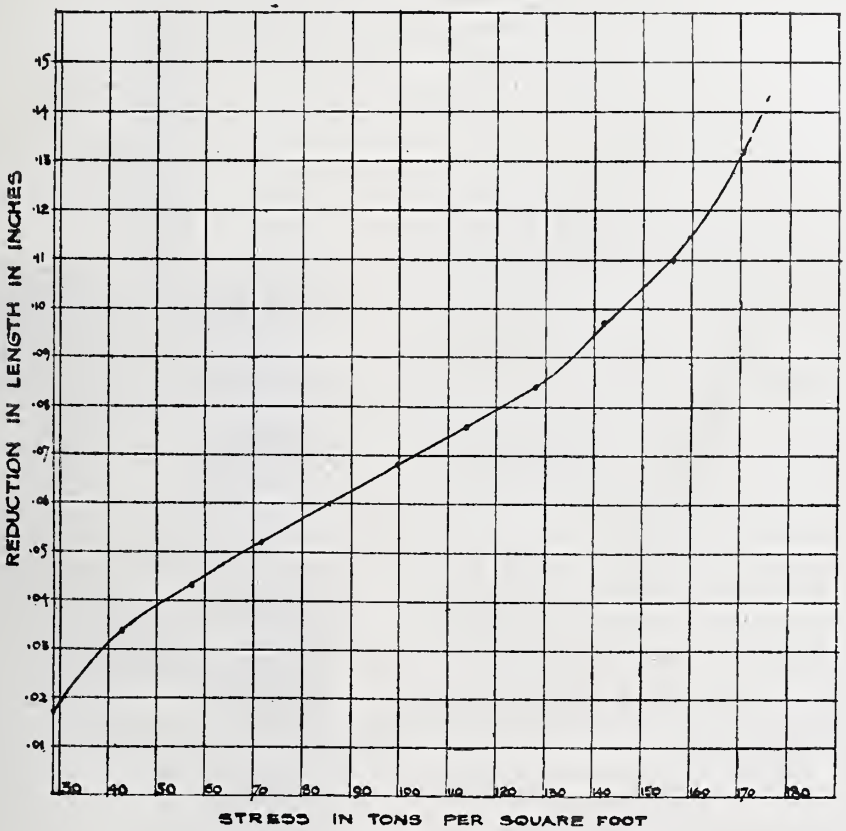


FIG. 1.

Two 12-inch cubes of concrete of the same age and materials were tested at the same time, as well as a 12-inch cube formed of Portland cement and Portland stone dust, used as sand, also tested at an age of two months.

The figures which show the gradual shortening of the column under the increase of load are very significant, and the writer has endeavoured to make these more readily understood by plotting on the diagram, fig. 2, page 49, the shortenings or strains in terms of the stress per square foot of the section within the spiral wire. This area is chosen as the part outside the spiral wire is not "armoured" concrete, nor does it add materially to the strength of the column to resist compression, though required as a protection against fire and rust. (See fig. 2).

FIG. 2.



From this diagram it will be seen that at first there is a great shortening under light load, due to the particles taking a permanent set amongst each other and to the concrete taking up a bearing against the wire. At about fifty tons per square foot the shortening became regular, *i.e.* the stress and strain were proportional. This continued up to about 130 tons per square foot, when the outer casing of concrete outside the binding spiral wire began to crack; the shortening then increased more rapidly than the load. When failure occurred it was local, and near one end, where the outer casing flaked off (see fig. 3); the spiral wire broke in two places, showing the characteristic reduction of area at the point of fracture of mild steel, and the longitudinal wires bulged outwards at the point of failure. The concrete, when examined at that point, proved exceedingly friable and easily rubbed out by the fingers. It seemed that the sand was not as sharp as required in good concrete work. The ultimate breaking stress was 180·9 tons per square foot.

Two samples of the cubes described above were tested in the form of 12-inch cubes, and bore 84 tons and 131 tons respectively. Suppose that, instead of being in the form of cubes, these samples of unarmoured concrete had been in the form of pillars of the same proportion of length to diameter as the armoured concrete column tested, they would undoubtedly have failed under a much less load.

Bauchinger made a very interesting series of experiments on Swiss sandstone columns of varying proportions up to about five diameters. From these it appears that if a cube (say 12 inches by 12 inches by 12 inches) of a certain material fails with a load of unity, a prism of the same base and of the same material, but five times the base in height steel bars in suitable number and of suitable section are embedded in concrete; both materials work together in compression, each taking a part of the load to be supported. But a pillar so constructed would be unsafe beyond a certain limit, and would offer a low co-efficient of safety. High as is the co-efficient of compression in concrete, it has been remarked that, when concrete pillars are tested to destruction, the rupture occurs really owing to the low resistance of concrete to tensile stresses. The first signs of disorganisation are vertical cracks on the faces of the pillar. It seems as if the central part of the body tried to expand laterally under compression, the result being a considerable radial thrust outwards, and ultimately a considerable tensile stress in the periphery of the body. As should be expected, the concrete is unable to stand that tensile strain, and when the pressure becomes increased, the outer part gives way and the pillar bursts out. To obviate what precedes we have adopted distant pieces or links, which are shown on fig. 2. They form a sort of belt round the pillar. They not only hold together the upright bars in the pillar, and prevent them from buckling, but they also form round the core of concrete, between the main bars, a sort of belt which compresses it, and moreover gives to that volume of concrete, delimited by the internal prism just described, and the outer surface of the pillar, the fibre which will strengthen it and communicate to it the necessary tensile properties. The load which can be supported by ferro-concrete pillars belted in that manner is considerable, and equal to several times that which a pillar of identical dimensions, made of concrete pure and simple, could carry.

The section of these links, their number and their position, are all determined by the requirements of each case. By multiplying the links it is easy to understand that we increase, proportionately to their number, the resistance of the bars to buckling, and that they may be placed so close to each other that a very high co-efficient of safety may be obtained. But we have to bear in mind the practical and commercial as well as the technical part of the work, and we should consider it unreasonable to aim at a resistance beyond what, in our opinion, each case requires by multiplying the use of these links *ad infinitum*.

I think that this is all that need be said on the general principles of Hennebique ferro-concrete construction. You see how easy is the arrangement, how simple is the construction; in fact, it is to that great simplicity, to the common sense which has presided at its conception, that it owes its success.

I have followed with natural interest the innumerable systems of reinforced concrete which have sprung up during the last few years; none of these systems can compare with the Hennebique system in that simplicity which enables one to take any labourer of ordinary intelligence and to make of him an apt workman in a very few days—I was going to say hours. So when you read that one of the drawbacks of ferro concrete lies in the necessity of skilled labour, please do not believe a word of it. So far as the Hennebique system of construction is concerned, it is not so; and surely I can speak with authority on the subject, since I had to form, myself, my own gangs of men when I introduced reinforced concrete in this country. It took me very little time to drill them in the practice of arranging the various parts of a work which is strength and simplicity combined.

Now I will add a few words respecting the theory of that system of construction. From the first it was evident that the ordinary laws, formulæ, and methods of calculation used for ordinary materials could not be applied in structures composed of such heterogeneous substances as concrete and steel. However, numerous attempts were made to use ordinary methods in making due allowance for the difference between the coefficients of elasticity of the two materials. Up to now these attempts seem to have been abortive. Their authors have consoled themselves by declaring our formulæ empirical. This we stoutly deny, because we did not start our work on formulæ. With us practice preceded by a good many years the theory—it was only after patient observation of the results obtained that we deduced the formulæ which are the basis of all our work; and what I have just said of the Hennebique construction itself can be applied to these formulæ. They are so simple that I believe their very simplicity is at the root of the criticism to which they have been subjected.

We must make up our mind that ferro-concrete is in itself an absolutely new material, which has come in its time to enrich the engineering world. The eminent engineer, Mr. Rabut, head of the engineering department of the Western Railway Company of France, after a long study, both theoretical and practical, of ferro-concrete, stated that: "Ferro-concrete was an entirely new material. That it cannot be treated as a combination of steel and concrete in which the properties of the component elements could be considered and treated separately, as if each of them were disconnected from the other. On the contrary, ferro-concrete must be considered as *ferro-concrete*; that is to say, as a kind of material as distinct from steel as it is from concrete—a new material, which has its own laws of deformation." After years of constant practice, I endorse Mr. Rabut's statement without reserve.

The laws of deformation of ferro-concrete are indeed most surprising. For instance, take the following experiment. A rectangular bar of concrete when subjected to tension showed an elongation at rupture of, say, one-tenth of an inch; another bar, but this time of ferro-concrete, of absolutely the same external dimensions, and made of the same concrete, showed at rupture an elongation of an inch; that is to say, ten times greater, before showing any crack or trace of disintegration, than in the first case. The reason for this striking difference has not yet received a satisfactory explanation; but does it not confirm that definition of ferro-concrete given by Mr. Rabut? That elasticity of the new material is a property well known to all those who handle the subject. It varies in notable proportions with the distribution of the steel in the mass of concrete, but we never venture to take the elasticity of concrete into account with our calculations.

Ferro-concrete possesses other exceedingly curious and interesting properties, which I will not attempt to describe to-night. However, it is only by patient observation of these properties that a really sound theory of ferro-concrete can be built up, and I will abstain from comment on the various theories which have been propounded of late, beyond saying that in some cases their authors seem to me to have been in too great a haste to arrive at conclusions. Their aim appears to have been to force somehow ferro-concrete to dovetail between the lines of their formulæ, forgetting that it is the formulæ which must bend themselves to the dictation of materials; and in the same manner that present formulæ of resistance are the result of experience, so future formulæ must also be the result of experience. It is unwise to attach an absolute value to things the value of which is only a relative one.

The so-called Hennebique's empirical methods can be relied upon, meantime, with absolute confidence; because they have been the basis upon which over 12,000 different works have been constructed, which, in almost every case, have been subjected to severe tests, and the results of these tests have been carefully recorded. I venture to say that formulæ based on such a broad basis of practice may be reasonably considered as soundly established. And if, for the sake of argument, I admitted momentarily that our critics are right; that we have constructed thousands upon thousands of works, with a generous coefficient of safety in every case, by the use of empirical formulæ: my answer to them is: Let us adhere to the formulæ, empirical or otherwise, which give us such satisfactory results. Because, after all, what do we all of us seek in a construction if not a good result? Moreover, we decline to allow ourselves to be made the slaves even either of our methods or of our formulæ. Whenever a special and unforeseen case occurs—and this happens frequently—we meet that case by the means that our past experience has taught us to be the right and safe means.

When I spoke of "patient observations" it should be understood that I do not allude to those made by experimentalists in their laboratories. I have always present in mind that they deal with samples or test pieces of small dimensions, made under circumstances which cannot be realised in practice; and when I read of experiments made in various parts of the world which give astonishingly divergent results, I always wonder what was the age of the samples experimented upon, and the quality and composition of the materials used by the experimentalist; because the age of a piece of concrete is a most important element. It is well known that good concrete goes on increasing in quality year after year, and, if you wish to establish reliable laws, please do not test to destruction samples a few weeks, or even a few months, old. If you do you will arrive at the wrong conclusions. And you may accept my assurance that no two results will ever be alike, even on two samples of the same age, unless they are composed exactly of the same materials, mixed in identical proportions and by the same operator. Besides, bear in mind that the adherence of concrete to steel increases also with the age of the work. Also that, unlike construction in ordinary materials which, if left to itself, will deteriorate, the ferro-concrete construction will go on improving endlessly in quality with age. The "patient observations" to which I have just referred must be made on the structures themselves, and this is one of the reasons why, for a long time to come, all ferro-concrete structures should be tested after completion.

In our practice we always test our structures, within a very few weeks after completion, with loads 50 per cent. in excess of the calculated load; we measure the deflection which, in the case of floors, rarely exceeds $\frac{1}{1000}$ part of the span under test, although we always guaranteed it will not exceed $\frac{1}{600}$ part; and we expect when the load has been removed that the floor, owing to the elasticity of ferro-concrete, will regain its former level, or, at any rate, that the deflection, if any, will be quite inappreciable.

And how could it be otherwise, when we consider that any stress applied to any part of a well-made ferro-concrete floor affects not merely the part under load, but also a very large area of the floor surrounding the part under observation? This is due to the absolute monolithism of the work. There is a test I would urge your Institute to promote. Besides the static tests there should be severe dynamic tests, without which the trials of a structure in which concrete and steel are combined are, to my mind, absolutely incomplete.

It has been observed that the great security offered by ferro-concrete construction arises from the fact that it never collapses suddenly, but always gives, long beforehand, warnings that are unmistakable. Naturally I assume that the work has been well calculated, well executed, and that the collapse is brought about through the imprudence of its owners, that is to say, by loads far in excess of the calculated load, by what could be called a destructive load. I wish to tell you on what I base my opinion.

From time to time I have made various tests to destruction, and I will describe one of them. In the autumn of 1902, we were making foundations at Bermondsey. Some space being available on the property, at the suggestion of the architect, Mr. T. W. Walker, of Finsbury Square, E.C., and of the engineer in charge of the work, Mr. R. J. Gifford Read, of Westminster, we constructed a Hennebique beam on two common concrete supports [fig. 5, p. 47]. It was calculated in the same manner as we should have calculated the floor of which it was supposed to be a part—for a working distributed superload of 3 cwt. per square foot. Seven weeks after, on the 25th November 1902, we proceeded to a test to destruction. We rapidly put on that beam boxes filled with sheet steel, each weighing 2 cwt. until we had on it 12 tons, which represented twice the calculated load. At that moment the concrete pillars began to sink in the ground. The load was left on all night. On the following morning it was found that the pillars had sunk a little deeper. The loading operation was then resumed, after having taken precautions to avoid injury to the labourers engaged in the operation, and the weight having been increased to 30 tons, or five times the calculated load, the operation had to be stopped, the pillars being crushed, and having taken a slanting position, which caused the beam to twist badly. It was then discharged. The deflection was measured at that point, and on the morrow it was found that the floor had sprung back by one inch. The photograph which I produce [fig. 5] shows the damage to that beam, which we could have continued loading for a long time before arriving at complete destruction, had not the supports given way. The beam cracked, but was by no means ruined; it suffered far more from the twisting resulting from the failure of the pillars than from the load put on it.

It is very easy to understand, from the very nature of the Hennebique ferro-concrete beam, that a trial of that sort cannot do justice to it. To give it a fair chance several consecutive beams should have been constructed, and the central one tested to destruction. However, you know that a timber beam or a steel beam would not have behaved in the manner just described.

But our buildings have, in actual practice, been subjected to very unforeseen tests; for instance I give you the following example. Several years ago we constructed at a colliery at Lens, in the north of France, coal silos about 40 feet high, and containing 1,200 tons of coal. These silos, as you see [fig. 6], are supported on 10 pillars. One day, when they were quite full to the brim, a train of coal trolleys came into contact with one of the legs and broke it. As you see [fig. 7], it threw that corner of the silo structure suddenly in cantilever—an event which certainly had not been foreseen by the calculator; but owing to the monolithism of the whole building, no injury resulted to the silos themselves, nor to the other 3 pillars of that particular silo. We merely had to reconstruct the broken pillar.

I may mention, too, a car-shed constructed by us at Le Mans, in France. The building is divided in two spans of 21 feet by a central

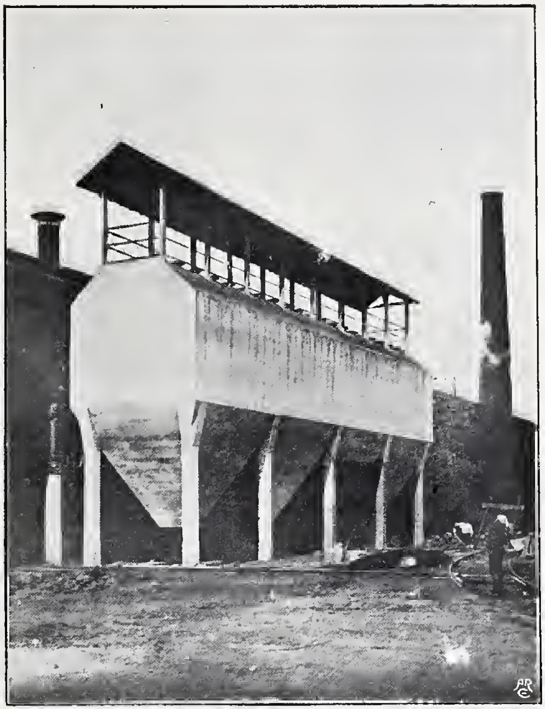


FIG. 6.

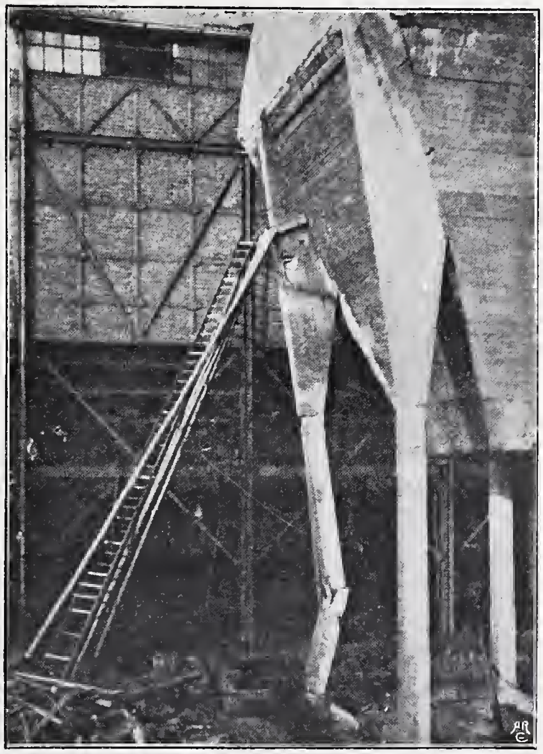


FIG. 7.

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line of ferro-concrete pillars. On 20th July 1901, one of the trams, having got out of control, came down the gradient leading to the shed (there is a sharp curve at that point), ran off the metals and came in contact with the central pillar at the entrance of the shed and broke it. Through that accident the span instantly became 42 feet instead of 21 feet, but, notwithstanding this, the beams supported by that pillar held perfectly, and did not show the least trace of strain; another proof of the safety due to the monolithism of the ferro-concrete structures. I think that you will agree with me that such practical tests are worth all the laboratory tests imaginable. The most interesting tests which I believe were ever made took place after the close of the last Paris Exhibition. The Hennebique system had been extensively applied in the construction of the buildings. Some of these have been preserved, such as the Palais des Beaux Arts. The others had to be removed. We availed ourselves of that unique chance to make systematically tests to destruction, the results of which I hope to have the opportunity at a future date of publishing. They were marvellous.

Piles.—One of the finest, most startling, and most useful applications of ferro-concrete is the construction of ferro-concrete piles. Had I not feared to trespass too much on your time, there is much that I would have liked to tell you on the subject. I will show you now illustrations* which I hope will, in a great measure, compensate for the brevity of my remarks.

We construct the piles very much on the same lines as a pillar. We calculate them as beams, since they will have to be lifted from the ground and made to take all sorts of positions while suspended from slings before being driven. This photograph,* taken at Dundee, shows how they are driven by steam in the foundation of a building designed by your colleagues, Messrs. Niven & Wigglesworth, of High Holborn. We always endeavour to drive them with a heavy monkey. We give them a very severe set. It rarely is more than 1 inch for the last combined 10 blows of the monkey. The drop is naturally regulated by the top weight which the piles are expected to carry. The size of the bars, the position of the links, are all regulated by the same considerations. Their cost is very little more than that of a timber pile, and they can take safely a weight so far in excess of what the latter can take (according to the ground in which they are driven—14 in. by 14 in. piles can safely take a load of about 60 to 80 tons, and more if we increase their section) that, on the total cost of a foundation, they effect a very appreciable economy. At the present moment we are constructing a foundation in which their use saves us over 12,000*l*. as compared with the original estimate for timber piles. And the punishment which they will undergo with impunity is extraordinary.

We have, in the course of our practice, which is considerable, broken a few of these piles when they were driven unreasonably by people who forget that there are limits even to the elasticity of a ferro-concrete body.

Recently, unaware to us, one of these piles was driven for three whole days with a 30 cwt. monkey, and received no fewer than 10,972 blows without breaking. I protested, but too late. However, the success of these piles is due to careful calculation, careful manufacture, rational consideration of what can be expected from the constituent parts of these piles, and to the judicious distribution of the steel in the body—because judicious distribution of steel in ferro-concrete is at the root of success, whether it is in a beam, in a pillar, or in a floor; but, above all, in a pile. When you see the steel concentrated in a mass, and forming a nucleus in the concrete, you may conclude without further investigation that the designer has ignored the most elementary rules of what is called reinforced concrete or ferro-concrete.

I have just shown you that the vibrations caused by a heavy monkey on a ferro-concrete pile do not affect it in the least, Frequently, when they have reached their set after prolonged and hard driving, we have to cut the concrete round the heads, that is to say, in the part which has been in the most direct contact with the monkey, in order to pass through the bars of the pile those of the beams which they will have to support; and when the pile has been well made, and the concrete is well set, we found it quite uninjured and perfectly sound and hard.

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* These were lantern slides shown at the meeting.—Ed.

It is an every-day occurrence for us to attach shafting direct to our pillars, by means of which the pillars are subjected to powerful lateral pulls. We also fix direct on our floors heavy machinery, such as disintegrators grinding heavy materials, dynamos, dynamo-motors, and, after years of that treatment, we have proved that the quality of the concrete has not suffered in the least. In fact, owing to the absolute monolithism of our constructions, they are far less liable to vibrations than ordinary constructions. I show you two striking examples which illustrate the subject. One [fig. 8, p. 56] represents the vibrations on two floors calculated for the same superload and having the same span. One is built in steel beams and jack-arches. The other is ferro-concrete. The weight dropped on the first is 112 lbs. and the drop itself is 6 feet 6 inches, producing vibrations $\frac{5}{16}$ths of an inch. Both weights and heights of drops are doubled in the case of the ferro-concrete floor. Still, you see how minute are the vibrations in the latter, as compared with the vibrations of the former.

The second example [fig. 9] refers to bridges; one built in steel, and the other in ferro-concrete. The vibrations were obtained by passing at a trot 16 men on the steel bridge, and 250 men on the ferro-concrete bridge, and in this case, again, you see how favourably the performance of the ferro-concrete compares with that of the steel one. This is easy to understand. We have no rivets, we have no joints, we enjoy all the advantages due to perfect monolithism. And I may say that one of the things which strike you most when you enter a factory constructed entirely of ferro-concrete, where heavy machinery is at work, is the absence of vibrations and of noise.

Another objection relates to the question of the preservation of steel embedded in concrete. Really this question should no longer be raised when so many indisputable proofs have been given that the very best material to protect steel is concrete itself. Among the first known applications of reinforced concrete, are those made over 40 years ago, in the shape of sewage pipes, by imbedding a web of iron in a thin body of concrete. These pipes have been renewed from time to time, after being buried for very long periods, and having contained liquids which were far more likely to affect the material than would be the case with pure water. The metal was invariably found in good condition.

On this subject I can give you my personal experience. About six years ago, I was building a jetty at Woolston, near Southampton. Some of my ferro-concrete piles were too long, and the heads were sawn off—they were of no value, and were thrown into the river. Years after, that question of preservation of steel by concrete having been raised in some quarters, I had the idea of making a search for some of these pieces, and to have them grabbed out of the river bed. They were demolished and the steel was found as when it left the mill. I dare say that there are some of these pieces still on the same spot, and anyone is welcome to repeat that experiment on them.

Constant practice shows us that oxide of iron cannot exist in contact with concrete, that rusted bars embedded in concrete will in the course of a month or so be as bright as new; the rust having been deoxidized with formation of a ferrite of calcium, which forms a protective skin round the bars.

It must also be borne in mind that the concrete used in ferro-concrete is markedly different from ordinary concrete, both in its composition, in its make, and in the way it is employed. It is composed of materials of small volume (three-quarters of an inch maximum for the gravel or stone), and the materials used are very clean. The proportions of sand and stone are always adjusted so as to give a concrete quite full—it is used in small quantities at a time, and so vigorously

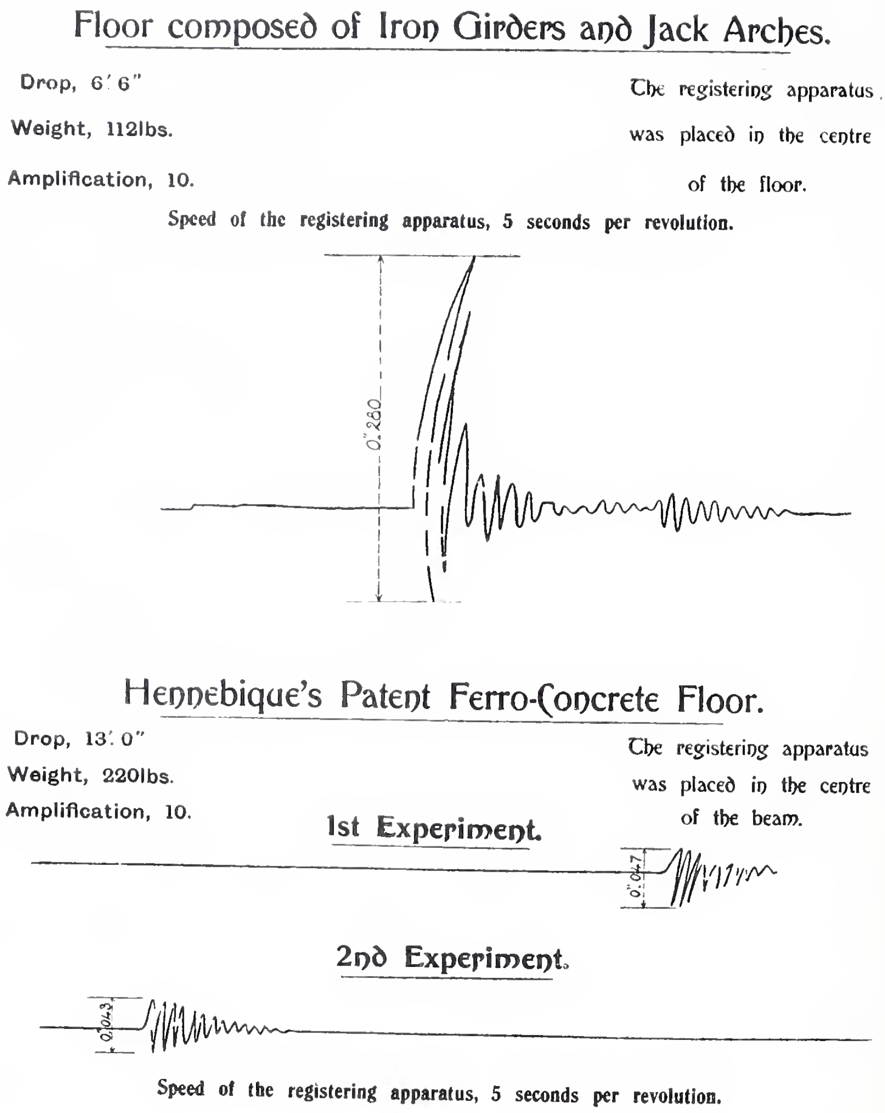
Floor composed of Iron Girders and Jack Arches.
Drop, 6' 6"
Weight, 112lbs.
Amplification, 10.
The registering apparatus was placed in the centre of the floor.
Speed of the registering apparatus, 5 seconds per revolution.
0".280
Hennebique's Patent Ferro-Concrete Floor.
Drop, 13' 0"
Weight, 220lbs.
Amplification, 10.
The registering apparatus was placed in the centre of the beam.
1st Experiment.
0".047
2nd Experiment.
0".043
Speed of the registering apparatus, 5 seconds per revolution.

FIG. 8.

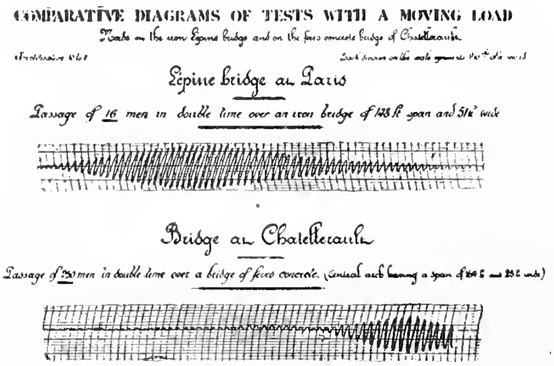
COMPARATIVE DIAGRAMS OF TESTS WITH A MOVING LOAD
Made on the iron Epine bridge and on the ferro concrete bridge of Chatellerault
Epine bridge at Paris
Passage of 16 men in double time over an iron bridge of 148 ft span and 51 ft wide
Bridge at Chatellerault
Passage of 250 men in double time over a bridge of ferro concrete. (Central arch having a span of 164 ft and 25 ft wide)

FIG. 9.

rammed that no cavities or porosity are at all possible. I have repeatedly had pieces cut out of our work, weighed them, immersed them a long time in water, then weighed them again. The absorption was practically *nil.* We have made numerous water-towers ; the thickness of the walls of the reservoirs rarely exceeds 5 inches, they are perfectly water-tight, and this without the help of any lining, such, for instance, as asphalt. I may add that our specification for cement is a fairly severe one.

The adherence of concrete to steel has been questioned sometimes, but the coefficient of adherence has been repeatedly determined. It is approximately 570 lbs. per square inch of metal in contact with the concrete. The value is such that it justifies the practice of some ferro-concrete builders who only reckon on concrete to make the junction between the different metallic parts of a structure.

As regards expansion of concrete and steel, their coefficients have been demonstrated to be identical up to the fifth decimal ; so in practice they may be considered as equal. And this leads me to say just a few words respecting the fire-resisting properties of Hennebique ferro-concrete.

Many experiments have been made which demonstrate its surprising resistance to high temperature and sudden cooling. Our buildings have had more than once to undergo the trial of actual conflagrations. We have seen their contents burned to a cinder, the buildings themselves left fairly blackened, their rendering more or less peeled off, but their resisting qualities were unimpaired. The floors, once cool again, were tested, and the deflections were then less than when they had been tested new ; which is a practical demonstration that age had already improved the quality of the concrete, and to an extent bears out my contention that not much value should be attached to tests to destruction made on young samples of concrete, and that it is almost folly to start building theories on the observations made on such samples.

Recently there was, as you know, a great fire at Baltimore. We had some buildings there ; they stood the fire ordeal admirably, and now they are again in use as before the fire. They stood even more than that. One of them, in particular, received on its roof the top stories of a high sky-scraper, and that shock it resisted as well.

Within the last few weeks they had a huge blaze at Antwerp. Some petroleum tanks took fire, and the inflamed oil flooded part of the wharves. The warehouses caught fire, and were destroyed—but not those built of ferro-concrete, which are now as good as ever.

ORNAMENTATION.

I have sometimes heard the reproach that our buildings are rather plain and even ugly ones. I will not attempt to deny that through no fault of mine our existing constructions in this country will not satisfy your artistic sense, being generally of the utilitarian kind, such as factories and warehouses. Moreover, I have constantly had to bear in mind the necessity of keeping the cost at a minimum, and therefore our works appeal to the observer more from their mass and outline than from their architectural detail.

There is no reason why ferro-concrete buildings should not be made as artistic as constructions in ordinary materials, and when the day arrives that architects will turn their attention to this new material at their disposal we shall erect buildings which we may be able to show with some pride, because there is none that lends itself better, and more economically too, than ferro-concrete to any shape that you may wish to give to it. I will prove this to you by a few pictures of some buildings entirely built of ferro-concrete, which I believe would be an eyesore to nobody in London. Fig. 14 shows a house built by M. Hennebique in Paris. It contains

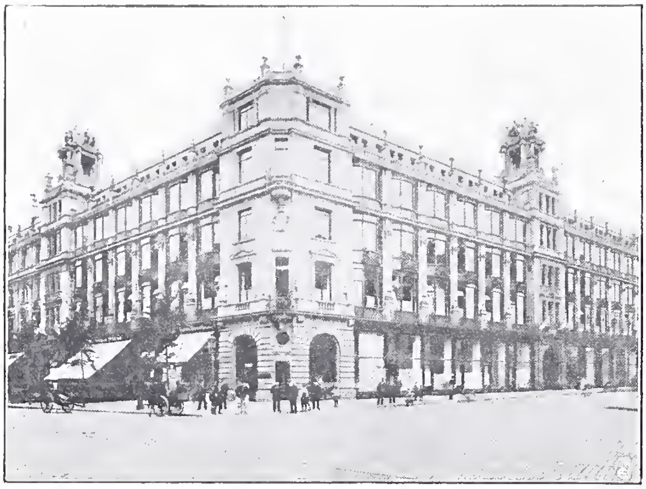

FIG. 10.—BLOCK OF SHOPS, DÜSSELDORF.

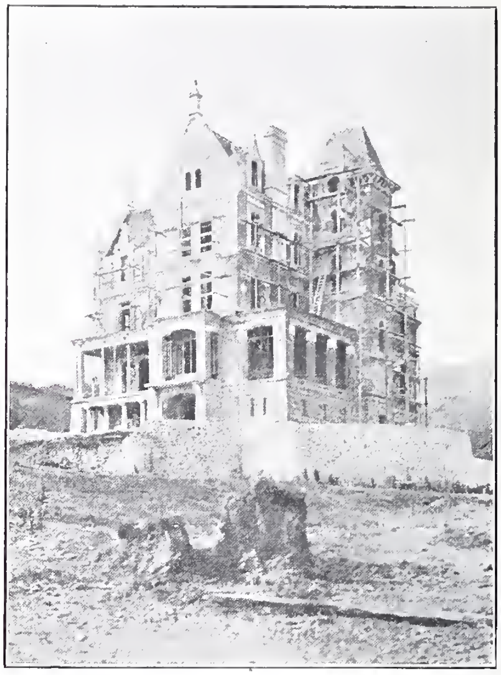

FIG. 11.—CHÂTEAU DU VALMY.

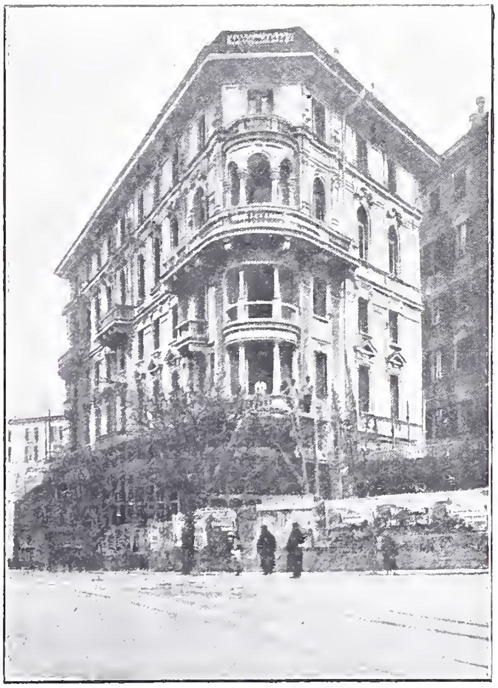

FIG. 12.—DWELLING-HOUSE, GENOA

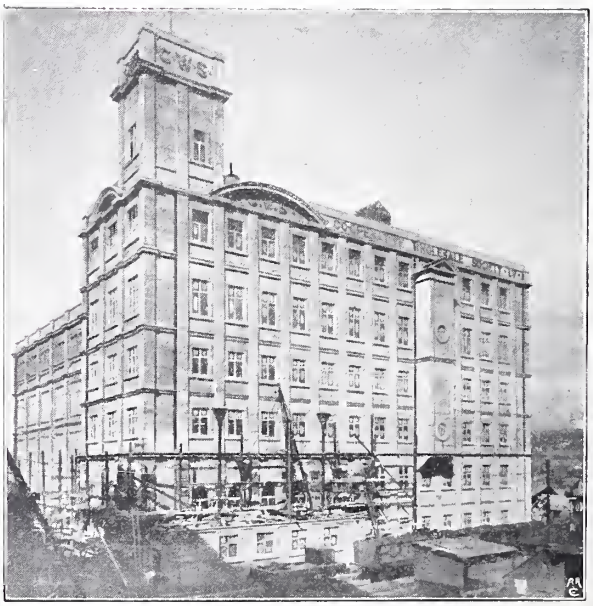

FIG. 13.—FLOUR MILL AND GRAIN SILO, DUNSTON-ON-TYNE.

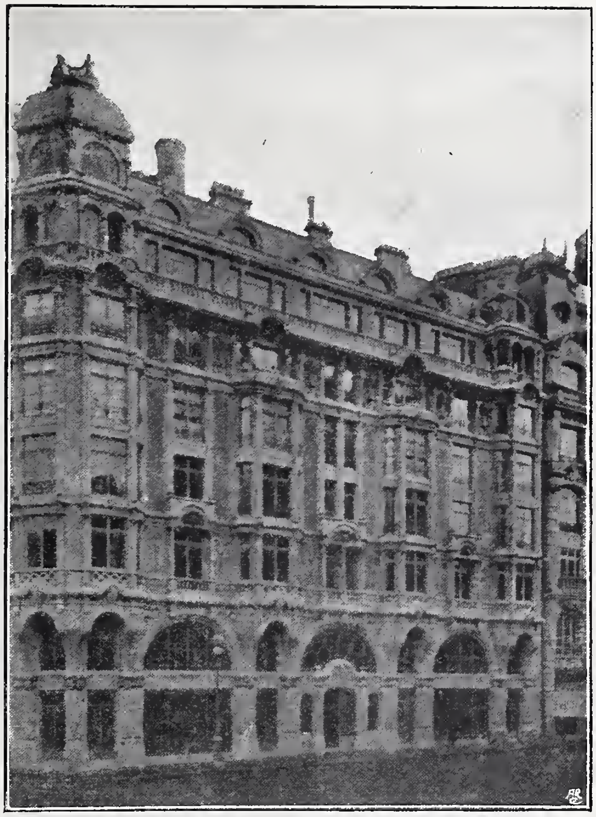

FIG. 14.—M. HENNEBIQUE'S HOUSE, PARIS.

a double basement and nine stories above ground—in all eleven stories. The walls at street level are one foot thick; when we reach the fourth floor they are 7 inches thick; and when we arrive at the top they are 4 inches thick. Be sure that those who administer the Act in Paris did not allow such a building to be erected in the capital of France without having investigated the case in all its bearings.

The main reception room in the extension recently constructed at the French Embassy in London is entirely in ferro-concrete, except for the external walls, and shows admirably how easily the material lends itself to ornamentation.

Fig. 11 is a view of a house at Epinal.

Fig. 10 is a row of shops at Düsseldorf.

Fig. 16 is a view of the interior of an assembly room at Lille. Fig. 15 shows the interior of a small theatre at Lille, entirely constructed in ferro-concrete. Most of the mouldings were roughly cast in ferro-concrete, and completed at a very small cost afterwards.

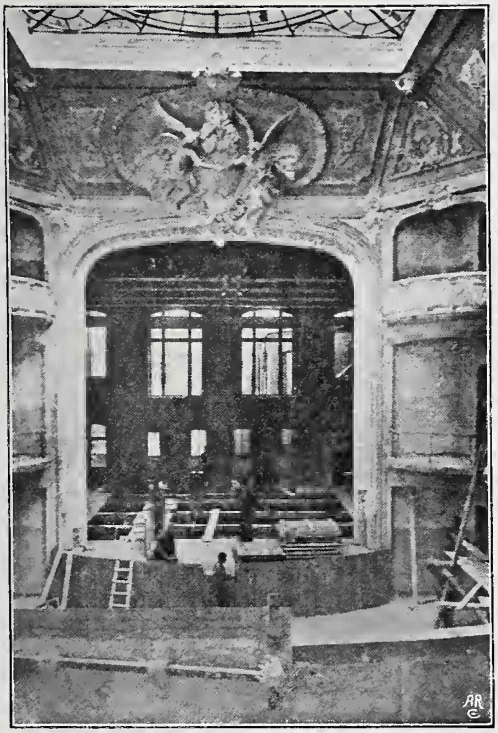

FIG. 15.—THEATRE, LILLE.

I also show you an industrial building [fig. 13]—a grain silo house erected at Dunston-on-Tyne to the designs of Mr. F. E. L. Harris, of Manchester. It will, I think, be admitted to be a handsome building of its kind.

BY-LAWS.

I was just mentioning the criticism to which our formulæ and methods have been subjected in some quarters. I would have passed them in silence because their importance is only a relative one. But the mischief is that all this gets into print, that it gets translated into foreign languages. You know the influence that printed matter, because printed, has in some quarters. And it is to be feared that when fresh building by-laws become enacted, in which ferro-concrete must find a place, that printed matter may do incalculable mischief. Some time ago I was reading by-laws

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framed for the benefit of American people, and others framed for Prussia, and I prayed that we, in this country, should be spared such by-laws, because I assure you that they contain clauses which are absolutely unreasonable. One can distinctly detect in them the finger of the professors who presided at their conception—gentlemen of merit without any doubt, but who evidently were not even on the fringe of the subject. I declare to you we should be better without any by-laws at all than to find ourselves imprisoned within the four corners of an Act containing such clauses. In fact, although the proposition may appear a bold one, I should ask, "Why any by-laws at all? Why try to fetter the designer of ferro-concrete buildings?" Do not hinder him in his work, but submit that work once completed to reasonable tests. Let these tests be varied. As I said just now, let them be dynamic as well as static tests. Let the by-laws, if any, be limited to the determination of these tests. At the present time London enjoys the unique privilege of being the only town in the civilised world where ferro-concrete constructions are actually prohibited.

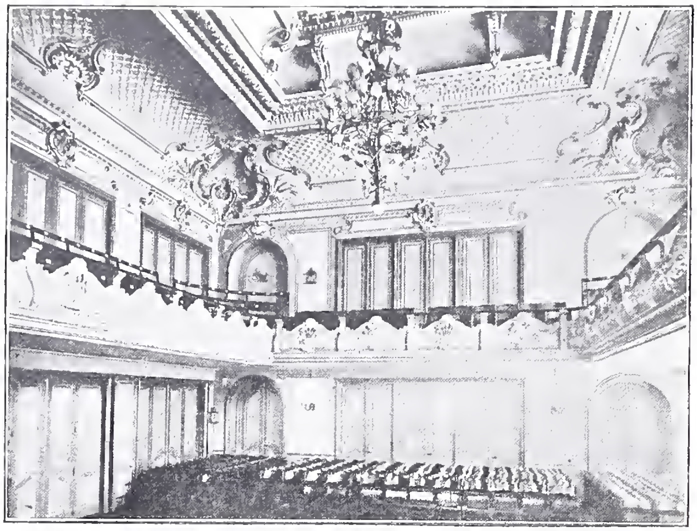

FIG. 16.—ASSEMBLY ROOM, LILLE.

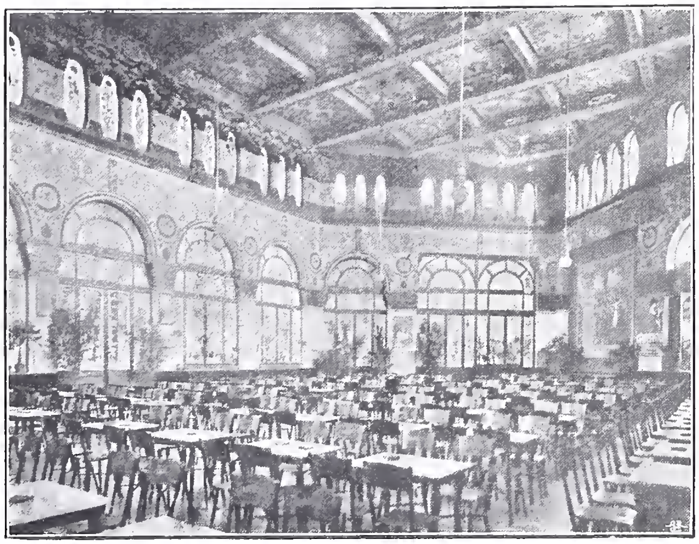

FIG. 17.—CAFÉ, GENOA.

As you are well aware, foreign countries have their building regulations, so has practically every town in the United Kingdom, and generally they do not, if read strictly, permit of the use of ferro-concrete. But, notwithstanding this, after intelligent and impartial investigation by the various authorities, we have been permitted to construct everywhere: those who administer these regulations having realised that it would be against their duty to the public to stand in the way of progress and of scientific advancement in construction. To confirm this I can show you views of buildings (very important ones indeed) constructed in various parts of the United Kingdom and which are entirely of ferro-concrete. In fact, to be quite exact, I should say that we have also such buildings in London, but only in places where the L.C.C. were unable to prevent us from building; I mean on ground belonging to railway and dock companies. Whenever we have applied to the L.C.C. for authority to construct similar buildings on ground under their jurisdiction we have been careful to call

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their attention to the above facts; but it has been in vain. The few persons who form the Building Committee preferred to adhere to the letter and to ignore the spirit of the Act. To all men of sense it is clear that Parliament can only have had in view public interest. It cannot have meant to bar the way to progress, but merely to prevent dangerous buildings being erected in London; and if ever there was a case where the traditional coach-and-four should have been allowed to run through the lines of an Act, this is certainly the one.

The L.C.C. Building Committee do not tell us in so many words, "You shall not build," their veto takes another shape. They say the Act stipulates that no external walls, if built in concrete, shall have less than a certain minimum thickness. Therefore, if you give your walls that external thickness go and build. To this we reply: Our walls are not concrete—they are ferro-concrete walls, which is quite a different material; and to give them the thickness of a common concrete wall would be, financially speaking, an impossibility; and, practically speaking, an absurdity, since our comparatively thin walls are many times stronger and safer than those stipulated in the Act.

But to no avail; prejudice or red tape continues to prevail against us. However, you know of what considerable advantage our walls would be in places where ground is of great value, where space is very restricted—for instance, in the City of London; and what a boon it would be not to occupy any part of that ground with unnecessarily thick walls. I say that the present Act was framed with a view of protecting the public against the perils of dangerous constructions.

In connection with this I wish you to bear in mind that, if ever there was a safe construction, it is the ferro-concrete one; because it will not—in fact, it *cannot*—lend itself to the malpractices of the jerry-builder. There is no possible trickery with ferro-concrete. Let the contractor try to cheat, try to escape the specification, and the detection will not occur months or years after, but *at once*. There is no possible escape. He must do what is right; if not, the penalty follows instantly. Therefore the adoption of ferro-concrete will have another desirable result. It will mean death to the dishonest contractor, while the honest one will find the best protection against unfair competition. Gentlemen, I will close my remarks by an expression of the hope that when the next London Building by-laws are framed your Institute will bear all this in mind, and will not permit the new material to be longer excluded from this capital; also that they will watch that only reasonable rules and not mere fads, which would be in their effect equivalent to the present ostracism, should find place in that Building Act.

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9, Conduit Street, London, W., 26*th Nov.* 1904.

CHRONICLE.

The Papers on Reinforced Concrete.

The subject treated at the General Meeting last Monday attracted a numerous attendance of members and others interested, the meeting-room being full to overflowing. Mr. Dunn was unable to be present owing to a severe attack of rheumatism, and his Paper was delivered by his partner, Mr. Robert Watson [*A.*]. The reading of the two Papers and explanation of the illustrations occupied the whole evening, and was not concluded till quarter past ten. The Chairman decided that it was too late at that hour to start a discussion; but to give members an opportunity of getting as full information as possible on a subject of such interest and importance, the Council, he said, would arrange for a part of the next meeting night, viz. Monday, 5th December, to be devoted to a discussion of the Papers, which, meanwhile, would be before them in the Journal. A vote of thanks to the authors of the Papers was proposed by the Hon. Secretary, Mr. Alex. Graham, and seconded by Mr. S. Perkins Pick, *Vice-President.* The latter, in seconding, alluded to Mr. Dunn's statement that cement was the most important ingredient in the mixture of concrete, and observed that in his opinion the failure of concrete in a great many cases was due to the bad aggregate of its composition. The Chairman expressed the hope that Mr. Dunn would have recovered and be able to attend the discussion on the 5th, and also that M. Mouchel would be present and favour the meeting with such further information as might be desired on the subject he had introduced to them.

Bristol Police and Fire Brigade Stations Competition.

The Watch Committee of the Corporation of the City and County of Bristol invite competition plans from architects with the object of rebuilding new Police and Fire Brigade stations in Nelson Street, Bridewell Street, and Silver Street.

The conditions contain the following two clauses :—

"The Committee are not under any circumstances to be considered bound to proceed with the erection of the whole or any portion of the buildings referred to in the particulars in accordance with any of the designs submitted under these conditions, but are to have absolute liberty to defer or abandon the proposed erection without assigning any reason, and without being liable to payment in any sum in respect of the designs beyond the premiums hereinafter mentioned.

"*To the authors of the two designs which, in the opinion of the Committee, are most suitable,* premiums of £100 and £50 respectively will be awarded in accordance with their order of merit. Should the Committee determine to proceed with the erection of the buildings, in accordance with either of the designs which obtain premiums, the amount of the premium obtained by the successful design to be merged in the amount of commission to be paid to the Architect at the rate of 5 per cent. on the cost."

The total cost of the buildings is not to exceed £55,000.

A letter, dated 15th November, was sent from the Institute to the Town Clerk of Bristol urging :—

1. The appointment of a professional Assessor.
2. A guarantee that the author of the first premiate design should be employed to carry out the work, provided there be no valid reason to the contrary.
3. An increase in the premiums in view of the value of the buildings and the work to be done by competitors.

A letter, dated 18th November, was received from the Town Clerk stating that he was directed by the Watch Committee to inform the Institute that the matter had been determined by the Council, and that the conditions for the competition could not therefore be reopened.

In view of the above facts, members of the Institute are requested to refrain from taking any part in this competition.

Special Election to Fellowship.

At the meeting of the Council on the 21st inst., the following gentleman was elected to Fellowship of the Institute under the proviso to By-law 9, viz. :—

Philip C. Thicknesse, of 14 Castle Street, Liverpool, President of the Liverpool Architectural Society.

Ownership of Drawings.

The ownership of drawings was in question in the case of *Gibbon* v. *Pease*, before Mr. Justice Ridley in the King's Bench Division, on the 15th inst. The claim was for delivery up of contract drawings and specifications, which the plaintiff, the building owner, alleged that the defendant, his architect, had wrongfully detained. The plaintiff also claimed damages.

Plaintiff's counsel, Mr. Danckwerts, K.C., said that the real point in the case was whether a person who employed an architect to make plans for him and supervise the building operations was entitled to have the drawings he, the employer, had paid for. At the date of the contract with the builders the drawings then in course of preparation by the defendant were made part of the contract.

Defendant's counsel, Mr. Kemp, K.C., contended that the drawings were prepared simply for the purpose of enabling the architect to see that the buildings were constructed in accordance with the approved design. If architects were bound to hand over these papers immediately the work was completed they would be in a hopeless position, and unable to protect themselves should they be attacked. Counsel offered evidence of custom that, in the circumstances of the case, the drawings and specifications were the property of the architect.

His Lordship declined to admit such evidence, holding that the case was governed by *Ebdy* v. *McGowan.** The drawings belonged to the employer, unless there was an express contract that they should belong to the architect.

Stay of execution was granted to enable the defendant to appeal, if he thought fit; and nominal damages of 1*s.* were given.

The late John Norton [*F.*]

John Norton [*F.*], who died at Bournemouth on the 10th inst., in his eighty-second year, was a pupil of the late Benjamin Ferrey [*Royal Gold Medallist* 1870]. In 1848 he received at the hands of Lord Brougham the first prize at the London University classes under Professor Donaldson. He was elected Associate of the Institute in 1850 and Fellow in 1857, and served for a time as member of the Council. He was President of the Architectural Association in 1858–59. He was hon. secretary of the Arundel Society during the whole period of its existence, and was a member of council of the Artists' General Benevolent Institution. Mr. Norton took a prominent part in church building and restoration, and in the development of ecclesiastical art during the middle of last century.

Mr. Alexander Graham, F.S.A., *Hon. Secretary*, after formally announcing Mr. Norton's death at the General Meeting last Monday, added:—"I cannot let this opportunity pass without saying a word in pleasant memory of our late colleague, John Norton, for a more amiable, kind-hearted man never entered this room (*hear, hear*). He enjoyed a very large practice some forty years ago, and had numerous clients of great influence in various parts of the country, especially in the west of England; and in testimony of his great reputation we propose to publish in the JOURNAL a list of his principal works. It only remains for me to ask your assent to a letter of sympathy being forwarded from the Institute to the relatives of our deceased colleague expressing our full recognition of his worth as a man and as a colleague, and of his merits as an architect."

The following are some of the principal works carried out under Mr. Norton's direction:—Elveden Hall, Suffolk, for the Maharajah Dhuleep Singh; Tyntesfield, Somerset, for Mr. Wm. Gibbs; Euston Hall. Suffolk, for the Duke of Grafton; St. Audries, Somerset, for Sir A. Acland Hood; the Turf Club, Piccadilly; Submarine Telegraph Company's premises, Throgmorton Avenue; Canada Government Buildings and Victoria Mansions, Westminster; Church Missionary Society's Children's Home, Limpsfield; Mickleham Mansion, Surrey; Badgemore, Oxford; Ferney Hall, Salop; Town Hall and Constitutional Club, Neath; Horstead Hall, Norfolk, for Sir E. Birkbeck; Royal Normal College for the Blind, Norwood; Nutfield, Surrey; Monkhams, Essex; Fickel Castle, Esthonia, for the Baron d'Uxkull; Framlingham Hall, Norfolk; Brent Knoll, Somerset; Summer's Place, Sussex; Chew Magna Manor House, Somerset; interior of Blaise Castle, Gloucestershire; County Courts at Williton, Dunster, and Long Ashton, Somerset; the High Cross, Bristol; Wimbledon Park, Southborough Park, Mandeville Place, Manchester Square.

New Churches: Stapleton Parish Church, Gloucestershire; St. Audries, Quantoxhead, Somerset; Powerscourt, Wicklow; Chevington, near Howick; Bourton, Somerset; Bedminster Parish Church and St. Luke's Church, Bristol; Stoke Bishop Church; Frampton Cotterell Parish Church; Highbridge Church, Somerset; St. John the Evangelist, Middlesbro'; Pontypridd Church; St. Matthias, Bristol; Emmanuel, Bristol; Neath Parish Church; Rheola Church; Ebbw Vale Church; Blaina Parish Church; Abertillery Church; Ystrad Mynach Church; Penmaen Church; Llwyn Madoc Church; Croxley Green Church; Christ Church, Finchley; Dyffryn Church; Congresbury Church, Somerset; Cwm Church, Monmouth; St. Matthew's, Brighton.

In addition to the foregoing a large number of churches were either restored or rebuilt by Mr. Norton. (*A full list of them will be found in an article on "Contemporary British Architects," Building News,* March 6, 1891.) Mr. Norton also acted as Architect for the Freehold Estate of the Crystal Palace Company; for the Ascot Land Company, the Totland Bay Estate Company, the Langland Bay Estate Company, the Empire, St. James's, and other clubs; and was awarded first place in the Bombay Public Markets Competition.

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* Noted in Macassey and Strahan's *Law Relating to Civil Engineers, Architects, and Contractors*, 2nd ed., p. 49.

PLENUM VENTILATION AND ROYAL VICTORIA HOSPITAL, BELFAST.

In the issue of the 12th November it was stated that a communication from Mr. Henman with regard to this matter would appear in the next number of the JOURNAL. The following is the communication that has been received, and as the Council think no useful purpose would be served by further discussion in these columns, the correspondence will now cease. At the request of the Council of the Institute, Messrs. Wm. Henman, Thos. Cooper and Henry Lea have supplied the following in reply to Mr. G. H. Bibby's communication published in the JOURNAL of 15th Oct.:—

To make any comparisons by taking a first year's working of such an institution is necessarily unreliable: but the new building was designed and erected *as a whole* for 400 patients and staff. Until its completion no one ever suggested even the possibility that all the main wards might not be utilised, although it was understood that some beds would not be occupied.

As the heating, ventilating, hot-water supply and other requirements were designed on this assumption, and have been kept going ever since, just as though the whole 400 persons were in residence, it is evident that to practically ascertain the cost of fuel, relatively to the work it has to perform, the total capacity of the building treated must be taken into consideration and not a less area or number of occupants: just in the same way as the cost of heating a church is based on its full seating capacity and not on limited congregations. Hence our published statement of $4\frac{1}{2}$ tons of coal per inmate provided for per annum is slightly over the mark, taking the annual consumption at 1,742 tons. That amount divided by 400 inmates equals little more than $4\frac{1}{4}$ tons instead of from 6 to 9 tons named by Mr. Bibby.

The coal consumption at the new building was however maintained for *nine* months prior to the occupation of the building, and during that period the quality, delivery, and use of coal, were, to our knowledge, very irregular, wasteful, and under no adequate check. Consequently, the only record is the amount for which the authorities have been called upon to pay, viz. 1,742 tons for the twelve months, which for the purpose of calculation we have made use of.

Another error into which Mr. Bibby has fallen, in paragraph No. 1, as given in the JOURNAL for October 15, is that he has taken the whole consumption of coal at the new building—viz. $716\frac{1}{2}$ tons—as consumed during the three months *period of occupation.* Whereas for nine months previously much of that coal was liberally used for testing machinery, and for drying, heating, and ventilating the building

Mr. Bibby points out a discrepancy in figures between the tabulated statement and the general report. This, however, is only an apparent discrepancy and is explained in the first paragraph, page 17, which shows that, in the tabulated statement, only patients *admitted* during the year are included. Whereas in the general report those remaining in from the previous year are added.

After Mr. Bibby's assumption that the figures in the tabulated statement are incorrect, and those in the general report are correct, it is strange that he should argue from them in a way that tells against the institution.

In other words he adopts the figures of the general report as "correct" for 1902, but avoids all allusion to those therein given for 1903. Although on the same line of the same page (14) the figures for 1903 appear as 2,458, while in the tabulated statement they are given as 2,298.

An impartial comparison of *both* years on the *same* basis would stand thus:

—	Cases treated.	Total cost.			Average cost per case.		
		£	*s.*	*d.*	£	*s*	*d.*
For year 1902 .	2,160	9,381	11	4	4	6	10
„ „ 1903 .	2,458	14,509	15	9	4	5	6

still leaving a balance in favour of 1903, and not the other way, as his statement would lead anyone to suppose.

Mr. Bibby makes out that the cost per bed was greater in 1903 than in the previous year, and implies that the ventilation is responsible; to some extent it may be, but not in the direction he would make it appear, because the greater the expenditure per hospital bed, the greater the number of patients treated per bed.

The comparatively lower cost per patient and the additional numbers treated are given in the report for the twelve months, but both these advantages result from the occupation of the new building for only three months. Yet additional and unusual expenditure for fuel employed before the new buildings were occupied is included as though it were part of the usual annual cost.

The broad facts remain that the hospital is more than fulfilling the expectations of all concerned, and although not much more than two-thirds fully occupied, both patients and staff are better provided for and pass their time in the new building with greater comfort than in the old, at no greater cost.

WM. HENMAN & THOS. COOPER, *Architects.*
HENRY LEA & SON, *Engineers.*

22nd November 1904.

ALLIED SOCIETIES.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

The President's Address.

At the opening meeting of the Session on 17th November, the following address was read before the Society at the Queen's Hotel, Leeds, by Mr. G. Bertram Bulmer [*F.*], *President*:—

Fellow Members, Ladies and Gentlemen,—About ten years ago I enjoyed the honour of occupying your Presidential Chair. You have thought fit to elect me again to that honourable position, and I desire to offer my thanks and to assure you that I will not be sparing of time or effort to promote your interests. In accepting the position as your President, I must remind you that I have a difficult task to perform in following our late President, Mr. Butler Wilson, who has laboured so zealously to promote our interests at all times. At this very critical period, when events of the greatest importance have to be considered, it is the special duty of the leaders of our provincial societies to be prepared for any sacrifice which circumstances may impose, and remember that their strength or weakness can largely determine the current of events in our professional existence.

The duties of this office increase year by year in amount and importance, and I am sure that our Council and Officers will give me every possible support, so that I may be able to conduct your business here and in London with firmness, and yet with due consideration for the susceptibilities of all contending parties.

The alliance between our Society and the Leeds Institute and School of Art to promote facilities for the study of architecture, building construction, materials, and such scientific subjects as are essential in the education of an architect, necessitates attendance at the meetings of the managers of that Institution. Attendance at the fortnightly sittings in London of the Council of the Royal Institute of British Architects, and the meetings of their sub-committee to formulate a scheme for the compulsory education, examination, and statutory qualification of architects is another important portion of our duties. Then there is the multifarious work of our own Society, with its Council meetings, Committee meetings, management of Library and Architectural School, and the series of Lectures during the session.

In connection with this, I congratulate our Hon. Secretary, Mr. Oglesby, in securing the able services of Miss Ethel Charles, A.R.I.B.A., the first lady who has ever taken that degree, and who will lecture to us on "Modern Architecture in London." We had, however, the pleasure of listening to a lady lecturer in 1889, when Miss A. Garrett, of London, discoursed on "Interior Decoration and Furniture," and quite recently I heard of an able lady lecturer giving instruction on "Sanitation in the House." I must confess that I welcome the intelligent interest of our wives and daughters in architecture and its allied arts. They can do much to graft in the rising generation an appreciation of the beautiful and the true in the design and arrangement of our homes. If our children be surrounded in nursery days with beautiful colour and simple form, they will, when grown up, rebel against the dirty tints and erratic forms which were prevalent during the Victorian era. There are also, I think, many collateral branches of our art in which I feel confident the natural ingenuity and taste of our lady relatives would find a congenial outlet.

And now let us turn our attention to matters of local interest, in so far as the architect is concerned. This year (1904) numerous buildings of importance have been completed in the city, due to the enterprise of our citizens and municipal and other authorities. It is to be hoped that the energy and skill which have distinguished the last decade may be displayed in the coming one. There can be little doubt that the city has, in its practical and artistic requirements, advanced by leaps and bounds, after waking from a period of lethargy which threatened to envelop it for ever. In making a survey of the buildings of the year, I do not propose to adopt any particular order, but the first which occurs to my mind is the new Roman Catholic Cathedral. The builders of this church are to be congratulated on the result of their labours. Their architect (Mr. Eastwood) has made the most of a restricted site, as regards the plan, and externally has succeeded in giving a cathedral character to his design in spite of its limited dimensions. Although it is thoroughly Gothic in conception, it is full of original thought in detail, and this is the treatment I should like to see adopted in the new Liverpool Cathedral, rather than a merely scholastic repeat of old mediæval work. At Armley, Mr. Henry Walker has been enabled to complete his *chef-d'œuvre*, the foundation stone of which was laid in 1872, by adding a tower and spire. Considering the excellent quality of this work, it seems strange we have not heard of a longer list of churches by this architect, who is, I believe, a native of Leeds. At Holbeck, Mr. Bodley, R.A., is responsible for a new church of brick and stone dressings, with lofty aisles, and without a clerestory, on similar lines to his church at Chapeltown. I must confess that I think a little more originality in detail desirable, although fully prepared to admit and admire the scholarly character of Mr. Bodley's designs. Of other churches I know not, except a contemplated one, of which I have seen the design (by a London architect). It is for a very poor district, and its leading feature is an enormous tower—a feature which is not an absolute necessity—and the contemplated provision of such a luxury is likely to cripple the funds for the necessary portions of the scheme.

At the Leeds Grammar School extensive alterations and additions are in progress, which will doubtless add much to the efficiency of the school. The design is by Messrs. Paley & Austin, of Lancaster, who won it in a limited competition, to which, I regret to say, only one Leeds architect was invited. I should like to have seen the same spirit displayed as, recently, at Eton, where the authorities promoted a competition amongst architects who were old students at the College.

Another very important work opened during the past year is the Kirkgate Market, and I had, on your behalf, the pleasure of congratulating Messrs. Leeming & Leeming on its successful completion; at the same time, as a practical architect, I cannot but consider that the promoters might have paid a large fee to a consulting architect, and been much "in pocket" by the transaction. If the oft-repeated details which are carved in stone had been reproduced in terra-cotta, a great saving would have been made, whilst retaining the general richness of effect. A judicious use of the pruning knife amongst the lead ornamented mansards, turrets, pinnacles, domes, &c., forming the roof covering, would have had a similar result. The money so saved could have been expended with more telling effect in the centre of the city.

The Dispensary, in North Street, by Messrs. Bedford & Kitson, is another addition to our public buildings. This is the third building occupied as a Dispensary within my memory, and one is fain to inquire how soon we may want another when we reflect on the rapid increase of the population. There are numerous other buildings, doubtless, worthy of mention—public hospitals, baths, libraries, warehouses, &c.—all of which indicate the enormous growth, municipal and private, of this great city, which I have not space to review.

I must not, however, forget to mention, as a sign of the improved art feeling amongst us, the Exhibition of Arts and Crafts promoted by our City Council; the Exhibitions held annually by the Yorkshire Society of Artists, and an Exhibition of Architects' Designs for Houses, held by the Leeds Arts Club—a new society of catholic spirit, and likely to be a power for good amongst us.

The contemplation of these buildings recently completed naturally leads our minds to thoughts of those which are to come. We may yet want a new art gallery, natural history museums, and possibly a block of law courts, to relieve the congestion of our present buildings; and in this connection I plead for a due consideration of their positions, so that each may reinforce the others. It is much to be desired that these matters—the laying out of sites for new buildings and streets—should be carefully thought out by a strong committee assisted by a competent architect, and not be left to the advice of a surveyor, whose training is directed to the questions of sewers and levels, rather than the ultimate architectural effect to be arrived at. The munificence and energy of Colonel Harding have settled the City Square problem, and other problems remain for solution. The Town Hall Square is a monument of previous incompetence, and must be taken in hand, unless we wish our grand Town Hall to remain standing in a howling wilderness. Can we hope that yet another wealthy citizen may be found to earn the gratitude of his fellows, and leave his "footprints in the sands of time," by following the example set in the City Square?

There are three more areas in the city which will have to be dealt with—that formed by the widening of the road at the bottom of Cookridge Street being the most important. It seems to me that here is an opportunity for the skill of the surveyor in providing convenient lines and levels for our tramways, and for the architect in devising a building scheme which will be an ornament to the city. With the Roman Catholic Cathedral on the north side as the key-note, this should not be an impossibility. An open space, having the cathedral on the north, imposing buildings of good architectural character on the east and west, and on the south a well-devised junction to Park Row—the centre marked by a feature, however inexpensive, of real artistic merit. As Artemus Ward said, "Now is the present time." Unless this question is tackled in a thorough manner, the usual fiasco will ensue. Another area to be dealt with is that in front of the Yorkshire Penny Bank. As the triangular block which stands there has to be cut away, almost entirely, for the widening of the street, here is another opportunity for creating a breathing space, and one of those points which are so valuable in punctuating a long line or the junction of several streets. The third area I refer to is that unoccupied site in the City Square, the frontage line of which has already been defined in accordance with suggestions emanating from this Society. I trust our City Council has sufficient power or influence to see that any building erected thereon may be in architectural harmony with the Post Office and the Standard Insurance Buildings. If the railway companies will do their part at the station entrances we shall then have a city centre not unworthy of us.

I now propose, gentlemen, to say something on a question which is, or should be, engrossing the attention of every architect in the country. Need I say I refer to the statutory qualification of architects. "To be or not to be, that is the question." And first let me point out that the effects of such a step will be felt only by our younger men, and that the battle we fight is for their benefit and theirs alone. If they desire "statutory qualification," and all it means, they must see to it that the advocates of this cause are supported efficiently at the elections by the Councils of the various Architectural Societies, which have been formed for the advancement of our calling. By getting more representatives on the Council of the R.I.B.A.; by providing funds for their representatives to attend the principal meetings, or obtaining a measure to enable us to vote by proxy. So important are these questions that I feel a meeting of the provincial presidents from time to time is most desirable, to watch the course of events and arrange for contingencies. In this, as in all other controversies, there are men who will not join either side, and stand idly by to await the issue of events. Let me appeal to such to give their consideration to the matter, and be prepared to give their vote for or against this vital question—vital because its determination will decide whether we shall for long years in the future, as in the past, contend unavailingly against a sea of troubles. I can well understand that some of those eminent architects who do not favour this movement are not able to see eye to eye with us. They are like the illuminated capitals at the head of a paragraph. They adorn and beautify it—we are the black type which expresses its meaning and substance—the pith and marrow of it. From the high position in which their exceptional abilities have placed them they are unable to perceive the needs of the general body of architects throughout the country, and that their special pleaders have been unable to change the views of this Society and others is patent, as we have returned a majority on the Institute Council. But we must not forget that the final decision will rest not with the Council, but with a general meeting of the Institute, which will be called to ratify the deliberations and recommendations of that Committee on which I have the honour to sit, and which is engaged in forming a workable scheme of education and examination, with a view to obtain protection, for those who have spent time and money in educating themselves, from the encroachments of that curious medley of persons who to-day can call themselves architects. When that general meeting to which I have referred is called we shall have to be there, and by weight of numbers carry the day, or the work of many weary years will have been in vain.

Through the mouthpiece of our opponents we are told that the standard of education will be lowered if we gain the day. I unhesitatingly affirm the contrary. Time was when we had no system of education. Examinations were established; students willingly flocked to them. How much more will they do so when the strong arm of Parliament protects them? The competition of numbers will cause the educational test to be gradually raised, resulting in the weeding out of the incapable to the great advantage of ourselves and the public. Our opponents desire to cultivate architecture as an Art only, enjoying the same freedom as the painter and the sculptor; but do we not know that architecture is a constructional art? We must first learn to construct our buildings soundly and consistently on scientific principles which can be taught, before we can bring to bear the God-given gift of artistic ability; and I venture humbly to say that some of our leading architects would have been better architects had they been more fully acquainted with scientific building. And we should not have had so much of our legitimate work falling into the hands of the decorator and furnisher, the engineer, the auctioneer, the builder and contractor, because we have failed to qualify ourselves efficiently.

The remedy for the present state of things, I think, is for our various provincial societies to combine and loyally support the Council of the Royal Institute of British Architects in forming a policy for the benefit of the whole body, both in and out of London.

I trust the day is not far distant when we may see our profession represented by a President elected from the provinces as an outward and visible sign of the good-will and appreciation of our London brethren. It has been suggested that minor lights should be hidden under a bushel, and that the rashness of youth should be curbed by the intelligence accruing to old age. Alas! how often we find old age without discovering intelligence. The present movement is a very real one, called forth by the exigency of the times, and I trust the provincial societies will not be too much occupied with matters local and personal, but take a deep interest in matters concerning the body politic. The old idea of provincialism is defunct —railways and telegraphs have destroyed it.

Since scheming this address, the gratifying news comes to hand that Mr. Aston Webb has received the honour of knighthood, and we offer our hearty congratulations. He also deserves our thanks for instituting a novel condition of competition. The competitor must guarantee that the design submitted is *bona fide* his own work. This throws a flood of light on one of the abuses of our calling.

Mr. Henry Tanner, architect to the Post Office, has also received a knighthood in recognition of his able services.

There is one other matter to which I would draw your attention. Whilst doing all in our power to promote our united interest, we must not forget those who have fallen on evil times—worthy but unfortunate brethren—who, seeking a living in the profession, have been overtaken by illness or financial distress. The Architects' Benevolent Society was formed in 1850, to watch over their interests. I venture to commend its good work to your notice, and hope that all will contribute to its funds according to their means.

To conclude, we who have travelled far on the road know the rough places and the smooth—the extent of them also. We would protect the architects of the future from the bitter injustice of ill-regulated competitions, and the financial loss which so frequently accompanies them.

We would protect them from the empiric, the quack, the Pecksniffs which surround them. We would lay the "architectural ghost," and scotch the architectural impostor.

The architect of to-day is essentially a professional man—an adviser, learned in matters pertaining to the designing and execution of all manner of buildings.

We would give him the protection and status which is afforded to other learned professions. "Union is strength." The union we require can never be attained unless we have a body of architects resting on one foundation—educated in one school, governed by one law, protected by the State.

Mr. Vickers Edwards, in proposing a vote of thanks to the President for his address, expressed the view that the Leeds new markets might have been erected for less money, with due regard to the interests of the ratepayers. He thought that every man who entered upon the noble profession of an architect should be registered.

Mr. W. H. Thorpe [*F.*], of Leeds, in seconding the motion, mentioned that he was an old member of the Architectural Society, and had served on its Council for twenty-eight years. He praised the good work being done for architecture by the Leeds School of Art, and commented upon the excellent positions gained by the Leeds candidates in the professional examinations. In passing, too, he had a good word for the Leeds Arts' Club.

Mr. Chas. H. Gott, President of the Bradford Architectural Society, supported the vote, which was cordially extended.

Early in the evening the President distributed a series of prizes competed for by the Associates of the Society. Mr. Ralph Thorp was awarded a silver medal and a cheque for £5 for some measured drawings of Hemingborough Church, near Selby. A prize for drawings showing the construction of an entrance hall and staircase was won by Mr. Martin S. Briggs. Designing prizes were awarded to Mr. Godfrey L. Clark (first) and Mr. J. Crust (second), and prizes for sketching were given to Mr. Martin S. Briggs, and Mr. S. R. Wyvill (extra). The prize work was on view at the meeting.

As usual the annual meeting partook of a social character. There was a large gathering of members and their lady friends. Smoking was permitted, and the excellent musical programme was arranged by Mr. Percy Robinson, the secretarial duties being discharged by Mr. R. P. Oglesby.

The Report of the Council for 1903–04, being the Twenty-ninth Report of the above Society, states that the total membership is 155, namely, 35 Honorary Members, 67 Members, and 53 Associates, as against a membership of 152 at the date of the last Report. During the Session there have been nine Ordinary Meetings, at eight of which Papers were read, and eighteen Council Meetings.

The Preliminary and Intermediate R.I.B.A. Examinations for the North-Eastern Division of the country were again conducted by the Council in conjunction with the R.I.B.A., in June and November 1903, at the Leeds Institute. Mr. Butler Wilson represented the Society on the Executive Committee of the Leeds Arts and Crafts Exhibition. The question of Registration of Architects occupied the attention of the Council, and the President attended the R.I.B.A. meeting in London, called to consider the question. A silver badge of office, executed by the Bromsgrove Guild of Applied Arts, to be worn by the President of the Society, was subscribed for by members of the Council and ordinary members of the Society. The Council appointed a sub-committee to deal with the Leeds Corporation Consolidation Bill; whilst approving the Bill as a whole, the sub-committee suggested alterations to some of the clauses. The Society's library has now been deposited with the Reference Department of the Leeds City Library Authorities, where the books will be more strictly supervised.

MINUTES. II.

At the Second General Meeting (Ordinary) of the Session 1904-05 held Monday, 21st November 1904, at 8 p.m.—Present, Mr. Henry T. Hare, *Vice-President*, in the chair, 64 Fellows (including 17 members of the Council), 58 Associates (including 2 members of the Council), and numerous visitors—the Minutes of the Meeting held 7th November 1904 [p. 20] were taken as read and signed as correct.

The Hon. Secretary announced the decease of John Norton, *Fellow*; and upon his motion the Meeting resolved that a letter of sympathy be sent from the Institute to the relatives of their late esteemed Fellow expressing their full recognition of his worth as a man and as a colleague, and of his merits as an architect.

The decease was also announced of Henry Ernest Stelfox, of Manchester, *Associate*, elected 1888 (*Ashpitel Prizeman* 1888).

A Paper by Mr. W. Dunn, on CONSTRUCTION AND STRENGTH OF REINFORCED CONCRETE, having been read in the author's absence by Mr. Robert Watson [*A.*], and a Paper on MONOLITHIC CONSTRUCTIONS IN HENNEBIQUE FERRO-CONCRETE having been read by the author, Monsieur L. G. Mouchel, a vote of thanks for the Papers was passed by acclamation; and the Chairman announced that, owing to the lateness of the hour, the discussion would be adjourned to the next Meeting, Monday, 5th December.

The proceedings then closed, and the Meeting separated at 10.20 p.m.

URBAN LEGISLATION IN THE INTERESTS OF AMENITY AT HOME AND ABROAD.

By G. Baldwin Brown, M.A., *Hon. Associate*,

PROFESSOR OF FINE ART IN THE UNIVERSITY OF EDINBURGH.

AMONG the subjects recently discussed in Presidential Addresses before members of the Royal Institute of British Architects and of the Architectural Association, as well as in the Provinces, few have recurred with greater frequency than the question whether some æsthetic control should not be exercised by central authorities over our new buildings, and over the laying out of new quarters in and about our cities. In 1899 the Presidential Address of Sir William Emerson put in the forefront of "subjects constantly dealt with by the Institute" "the conservation of our national monuments, building projects both for the Metropolis and Provinces, the laying out of new streets and town improvements, legislative Acts in relation to building operations, the representation of the Institute on many public bodies and committees where questions affecting architecture or buildings may arise . . ." ;* while in the latest of such addresses delivered at the Institute Mr. John Belcher has returned to the topic. After noting the demand of his predecessor in the chair, Sir Aston Webb, for "some authority to whom schemes of public improvements might be submitted, not necessarily for sanction, but for consideration and advice," he advanced the further claim that the proper authority should have power not only to advise but "to decide and determine," and remarked how much might be accomplished "if only the First Commissioner of Works, acting as a Minister of Fine Art with the aid of an advisory committee, possessed the necessary despotic power to see the right proposals adopted." † Furthermore, on the first occasion that a President of the Architectural Association addressed the members in their new home at Westminster, the same subject or group of subjects was discussed, and this opinion was expressed: "It is matter for regret that in this country we have no Ministry of Fine Arts, or some consultative committee on art, who could advise when sites come into the market, or buildings are pulled down, as to the form the rebuilding should take, or what improvements or modifications in the design would conduce to the future dignity and beauty of the city." ‡

Utterances of this kind might easily be multiplied by reference to addresses on architecture in its public aspects delivered in recent years by heads of provincial societies in alliance with the Institute, or by officers of national or local archæological associations. Frequent are the complaints of the haphazard fashion in which we carry on the business of the ædile, and many the sighs after the official systems and the benevolent despotisms which are believed to exist on the other side of the Channel and the North Sea. In view of this evidence of a widespread dissatisfaction with the present state of things, it may be worth while in a few sentences to consider the proposals which in these matters it may be reasonable in this country to urge, and to notice in this connection some of the measures which are in force in Continental lands for the furtherance of urban amenity.

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* Journal R.I.B.A., 1899–1900, p. 1.

† *Ibid.* 1904–5, p. 6.

‡ Address by Mr. Guy Dawber [*F.*], reported in the architectural journals, 7th October 1904.

Among the subjects on which protective or restrictive measures seem chiefly to be demanded are the following:—1. The treatment of public edifices, with special reference to those which are mainly of an engineering character. 2. The building of new streets in connection with urban improvements. 3. The laying out of new suburban districts. 4. Ancient monuments of artistic or historical value.

In the case of public buildings, those of an architectural character are in most cases in the hands of architects of established reputation, or of younger men for whom everyone would wish a free field in which to show what they can do. No one would seriously urge that committees of taste should sit on their designs—if for no other reason because the members of such committees would seldom or never agree. On the other hand, when the work is mainly one of engineering, such as a bridge over a river, or a railway viaduct across an important street, the case is different, for there are certain well-defined artistic principles which all architects will understand, but which the modern engineer too often wholly neglects. The evil of the present state of affairs is that the authorities in charge of such works have to be urged and implored by those interested in amenity to consider the æsthetic character of their designs. This is reversing the proper order of procedure. It is they who ought to approach the artists, instead of the artists having to hammer at the doors of Guildhalls and County Council chambers and railway offices, for an audience. In the Institute and in the Councils of provincial associations there exist bodies which could always provide suitable expert advice.

In connection with the second point, there are two matters to be distinguished, the laying out of new streets and the design of their frontages. The former is a question of civic economics, the latter one of taste. There is often pointed out the immense advantage of working on a comprehensive scheme covering a large district, as against our usual piecemeal and hand-to-mouth proceedings. Sir William Emerson in 1901 even urged that "the whole question of the rebuilding of London," in spite of its enormous difficulty and the huge expense it would involve, ought at once to be taken in hand. There are obvious advantages in deliberate operations on a large scale, but the question is one of business, involving foresight and organisation and capital, as well as patience, before artistic taste can come in at all. An urban authority can only lay out at will ground that is its own, and such a gigantic work as the new Strand improvement could only be set on foot on the condition that the ground affected had passed under the control of the executive power. The New Town of Edinburgh was a complete and satisfying piece of work, because the city held the lands which the extension was to cover. It is obvious that the acquisition of such property is a matter with which architects have only to do as members of the general community; but it is right that they should make their voice heard as to the enormous artistic advantage of working in this comprehensive fashion.

When it comes to the design of the frontages the question is immediately an artistic one. Street frontages may be conveniently, if roughly, divided into four kinds: (1) the regular composition of monumental beauty in style and material; (2) the regular composition of slighter artistic value in design or work; (3) the frontage irregular in plan and sky-line, but picturesque and pleasing; and (4) the irregular line of buildings without distinctive character in the mass or the units. The first kind of frontage is secured when a complete design for the elevations of a block, a street, or a square has been provided at the outset by the official architect, and every individual proprietor who takes a building stance is bound to conform thereto. Such compositions are characteristic of some of our stone-built cities that flourished in the Neo-Classic period, such as Bath and Edinburgh; and where design and material are both of the best, they are of great value, and should by all means be preserved inviolate. They are as a fact by no means always secure. In the case of a particularly fine example, a well-known square in a northern city, though the original elevations had all to conform to the prescribed design, yet there was no formal provision for their maintenance, and the present proprietors are under no legal restriction in the matter of alterations on an original façade. In the case of classical compositions, balanced and detailed with the nicest sense of form and proportion, such as Archibald Elliot's Waterloo Place at Edinburgh, any alteration throws the whole out of gear, and the most zealous care should be exercised to prevent inconsiderate or wanton tampering with what depends for its value on its completeness. As the importance of this is not always seen by the average citizen, we have here a field where the exercise of a little authority and compulsion would be quite in place.

In cases where a frontage, though regular, has no great artistic pretension, few would feel so strongly, and following such compositions down in a descending scale of architectural value, we soon reach a point where mere regularity ceases to please, and we find ourselves preferring the picturesque irregularity which results from our national methods of *laisser faire.* Compare the façade of the Rue Rivoli opposite the Tuileries Gardens, in Paris, with our own Park Lane. The latter, though few of its units may claim architectural consideration, charms us more as a whole than the monotonous frontage that stretches without apparent limit on either side of the Place des Pyramides. It is quite comprehensible that Oxford Street, with its agglomeration of accidental shapes and colours, should be more pleasing to some people than Regent Street, where there is indeed regularity, but nothing really of a high order in style or material. Hence it seems to follow that, unless a thoroughly well-considered monumental scheme can be carried out for a new street, and can be maintained, our own method of leaving to the individual proprietor his freedom is, after all, not to be lightly set aside.

The case is very different when we come to the third subject on which there is a demand for protective or restrictive measures—the laying out of new suburban districts. As regards the neighbourhood of London, there are well-founded complaints, enshrined in many recent pages of the JOURNAL, which protest against the haphazard fashion in which vast districts are being covered with rows or knots of mean or meanly pretentious domiciles. The evil is still greater when we are dealing with the outskirts of towns, the surroundings of which offer noble prospects of rock, or sea, or woodland. There are roads leading out of cities that could be named from which a few years ago a succession of entrancing views, both wild and rural, could be obtained, but which are now lined by long unbroken rows of tenements, of the dullest description, that completely block out every prospect, and make the pedestrian feel as if he were in a prison. This result might have been foreseen, but as the laws now stand it could not be prevented. Such is our present state of helplessness in this regard that any speculative builder can buy up land just outside a growing city and dispose houses over it at his own unaided fancy. The urban authorities, exacting in the matter of drains and materials, have no power to prevent his inflicting irreparable injury to the amenity of a whole district. The situation would be ridiculous had it not a serious, almost a tragic, side. Here is a parcel of land which in a few years' time will be part of the town, and in a true sense the common possession of the citizens; a portion of it, the roads, will actually be city property; yet there is no power to make the treatment of this parcel work in with a more comprehensive scheme, or to force considerations of the public weal on an individual who may be thinking of his own private interests alone. Surely the future of an extending city should not be left so much to chance. The community should undoubtedly have the power to prepare beforehand, as it were, its own habitation by laying out new districts on lines of general utility, and by exercising restraint on the actions of individuals when these will in time bear fruits of a public kind.

The last point of the four selected above is the protection of ancient monuments of artistic and historical value. This term includes not only the comparatively few specimens of outstanding importance which have a national value, but also a far larger body of monuments, the protection of which is of local rather than universal interest. Of this kind are the remains of ancient fortifications, civic halls, hospitals, and almshouses; bridges, railings, gates, steps, fountains, and the like, as well as domestic buildings and their adjuncts; and the safeguarding of these is of moment, not only in the interests of localities, but in those of the country at large. If a tasteless new building be erected, it may conceivably be improved or demolished. If a district be badly laid out the ground is still there, and future alterations may result in an improved disposition of streets and squares. But when an ancient building, with associations, style, and technique redolent of the past, is "with a light heart" demolished, the loss is absolutely irrevocable, and if for this reason alone any civic policy which involves such demolition should be very carefully considered. For if the average British town councillor see no special value in these things, there are many people whom he rightly wishes to please who rate them very highly. These evidences of an historic past are a form of wealth possessed by Great Britain which is not shared by her colonies or by the United States. We ourselves have grown up among these memorials, and take them as a matter of course; but to our kinsfolk from across the seas they are objects of extreme interest. The mother country must always remain the soil in which are rooted all the traditional memories of the race. Now these memories are of incalculable advantage in keeping alive throughout the Empire the sense of the unity of the stock, and the relics that evoke them may be envisaged as one of our imperial assets which on economic, almost on political, grounds it is our interest to maintain. Anyone, moreover, who has taken American acquaintances round one of our older historical cities knows how the sense of a solidarity, still ampler than that of ourselves and our colonies, is brought to mind by the ancient homes that sheltered the forefathers of the common race. Structures of the kind have more than an æsthetic or sentimental interest; they are a living witness of the history through which the nation has grown strong enough to flourish itself and to send forth branches that cover the earth; and as they must inevitably grow fewer and can never be replaced, it is surely one of the most pressing of duties to defend them as far as is practically possible from the many dangers which beset them.

It seems, therefore, that of the various demands now passed in review the most urgent are those for powers in regard to the laying out of suburban districts and for the protection of ancient buildings, more especially of the domestic class. It should be possible also to secure some approach to style and taste in engineering structures and to prevent by authority any alteration on really fine monumental compositions in the classic style of architecture. If we went further and demanded æsthetic supervision for new buildings generally, whether public or private, we should be venturing on very doubtful ground. The fact is that when we come to close quarters with these questions of amenity, and consider them in relation to the popular mind in Britain, to Parliament, and to Courts of Appeal, we see that to get any measure backed by public opinion, passed by the House of Commons, and sustained against the recalcitrant by the judges, that measure must be of comparatively limited scope and clearly defined. Vague powers of æsthetic control we shall not easily obtain, and if we had them we should be constantly pulled up sharply in their exercise. On the other hand, public opinion, as voiced by *The Times* and other journals, does seem prepared for some reasonable legislation on some of the points now under discussion.

To obtain anything worth having we must moderate our demands. For one thing we must give up the vision of a British Minister of Fine Art, throned aloft as the "still strong man," and, equal in power and in taste, dispensing even-handed justice among the conflicting interests that jostle each other in the domain of art. We may imagine such an one administering the Chantrey Trust to the satisfaction alike of the Royal Academicians and the New English Art Club; holding the balance even between the classical and mediæval in architecture, and adorning our public places with artistically "felt" effigies of modern statesmen in coat and trousers. We can follow his career as he wages ceaseless war on the holders of vested interests in the apparatus of civic ugliness, and track him to a glorious sunset, when his most beneficent and best considered regulations are overturned on appeal by the House of Lords. He is a vision on which we may love to dwell, but he will never in our time become a British institution. Indeed for such a benign and omnipotent despot in art we may search the world in vain. Foreign countries are often supposed to rejoice in Ministers of the Fine Arts, but as a fact no Minister of the Fine Arts pure and simple exists anywhere, at any rate in the foreign countries with which we have most concern. In these countries the interests of art engage part of the attention of the head of a more extensive department, such as Public Instruction and the Fine Arts (France), Public Instruction (Italy), the Interior (Belgium, Bavaria), Home Affairs (Holland), Religion and Education (Austria), Religious, Educational, and Medical Affairs (Prussia), or Public Works (Prussia). The Ministers representing these departments are in each case charged officially with the care of artistic interests, but they have to fight for the place of art in their annual budgets, and have to play the benevolent despot with powers often sadly restricted.

Among ourselves there is no such formal recognition of art in the governmental system, but its interests are by no means neglected. On the educational side, for example, it fares by no means badly, and in the department of monuments the First Commissioner of His Majesty's Works may bring a cultured taste to bear in a sympathetic spirit on these questions of amenity. Quite recently those in the North who feel the value of the historical relics that still remain in our older towns have had cause to be grateful for the tact and liberality of the Office of Works. It will not be forgotten by members of the Institute how as lately as last year the First Commissioner showed at one of their meetings that he possessed all the knowledge and good will, if he lacked much of the power, of an ideal Minister of Fine Art. In connection with the President's opening address in November 1903, Lord Windsor, who was present as a guest, used some most encouraging expressions, of which it may be well to remind the readers of the JOURNAL.*

A friendly attitude on the part of the advisers of the Government in matters of amenity is of essential value, but it would be a mistake to expect the Government, or any department of it, to travel far in the way of initiating measures of reform. The initiative must come from outside, and what is really required is agreement among bodies and individuals interested in this matter, on certain practical proposals of limited scope which could be pressed on Parliament with some reasonable hope of a successful issue. As some small aid towards the formulation of such proposals there may be given here a brief indication of some of the measures in force in foreign countries and the manner in which they are found to work. What follows must be regarded as supplementary to Sir W. Emerson's paper on "The Necessity for Official Control over Architecture in our Towns and Cities," read before the Architectural Congress of 1900, and to various communications which have appeared recently in the JOURNAL with notices of foreign institutions and methods.

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* JOURNAL R.I.B.A., 1903–4, p. 11.

For example, attention has been called more than once to the advantages which German cities possess in their control over the laying out of new suburban districts. It is highly probable that some English or Scottish towns will in the near future be asking Parliament for powers in this important matter. What is needed, as an indispensable preliminary to success in these applications, is some agreement as to what powers can reasonably be asked, so that similar applications from different quarters may reinforce each other. It would be a valuable practical aid if some of those who have quoted these German regulations would formulate upon this basis clauses suitable to be inserted into any future municipal Act, that may be promoted by British towns which are especially alive to the evils of their present helplessness. It goes without saying that it is no use asking, or at any rate asking at first, for powers as extensive as are possessed by some German cities. These cities have at their back traditions of the time when they were practically independent communities, and though at one time not long ago their individuality seemed in danger of being swallowed up by the State, yet the so-called "Dotations-Gesetze" of 1875 restored to them in practice a good deal of the old autonomy. Hence they are able to-day to manage their own affairs much more freely than is the case in British cities, which have to apply for parliamentary powers before they can make reasonable local regulations, and are nipped by the Court of Final Appeal if in applying these they advance an inch beyond their legal limits. In Germany the central authorities favour the action taken by local communities in the interests of amenity, and Ministers charged with the care of these interests are always at work for their advancement. In England Parliamentary Committees are traditionally hostile to local applications of the kind, unless these are very clear and moderate and strongly backed.

The benevolent action of central authorities in Germany is generally met by intelligent co-operation on the part of local bodies, and we find in that country actually at work those comprehensive systems for which in the case of London appeals have recently been made at the Institute. In the matter, not of the laying out of suburbs, but of town improvements within an ancient city, the recent example of Mainz may be referred to.

Mainz is in the Grand Duchy of Hesse, which lately, in 1902, equipped itself with a State Monument Act on which, or on the various Monument Acts of which it is one, a word will presently be said. Under this Act there is an official Conservator of monuments for the Grand Dukedom as well as a machinery of advisory councils, &c.; but the principle of action in Germany at present seems to be to avoid as far as possible bureaucratic methods, and to coax local bodies, and the public generally, into action in accordance with the views of official experts. Accordingly, last year the Hessian Conservator, in union with the civic authorities, went over the whole city and surveyed it with regard to all prospective requirements in the way of widening of streets, &c., for the next ten years, and considered in the light of these requirements all the older buildings of historical or artistic value that might be affected by the changes, the object being to avoid hand-to-mouth procedure, and to determine on a comprehensive plan the relation of new and necessary improvements to the traditional aspect of the streets, so that "the maintenance of the historical physiognomy of the city should be assured by securing the safety of all valuable buildings, and taking care that all new ones erected in their vicinity should accord with their style and appearance."

The working of the official mind in Germany in regard to control over architecture in towns and cities may be judged from the following rescript issued on the 1st of January in the present year by the Ministers of the Interior and of Religion in Bavaria. It contains advice and directions to local civic authorities as to the measures they should take for the control of building operations, and it will be seen that the main object in view is the safeguarding of the traditional aspect of older cities. This we have already noted as a matter with which we in Britain are particularly concerned.

The rescript in question lays it down that " ancient works of fortification, with their fosses, city walls, gates, towers, and all thereto appertaining, are to be preserved as carefully as possible," and that " constructive alterations, interior or exterior, on buildings of historical or artistic importance must depend on official permission." Again : " When new lines of houses are in contemplation care should be taken to safeguard the picturesque views of streets and open places, and the tyranny of the engineer's rule and level must be resisted. In general, in the case of all new buildings, especially in the older parts of cities, it should be made a matter of duty to adhere as closely as possible to the traditional building style of the place," while " in the case of new buildings in other situations, especially when fresh quarters have to be laid out " (in suburbs), " it would be enough to keep in view general æsthetic requirements."

This joint minute of the two Bavarian Ministers is a distinct encouragement to towns to pass local regulations in the interests of amenity, and that this is not confined to Northern Germany is shown by the fact, recently reported, that the forthcoming Monument Act in Prussia, which has been in preparation for a long time, will contain a provision empowering towns to formulate measures of the kind for their own protection.

This brings us to the question of urban legislation in relation to amenity, which was discussed, as we have just seen, at the London Architectural Congress of 1900. It was then stated that though France sets an example to the world in her treatment of public buildings, and her control over the utilitarian structures of the engineer, yet in the safeguarding of the aspect of the streets in connection with domestic buildings Italy is the only country that " has any real control in the public interest over the artistic design of buildings, and this is exercised by committees in each city." In the case of Rome it is instructive to note that there is a Commission for Civic Works (Commissione Edilizia) of a kind for which we have seen the demand raised on behalf of London. This Commission is composed of twelve members, elected by the Civic Council, of whom six must be members of the Council, while the rest may be chosen from outside. The Syndic of Rome or his deputy is convener. The Commission is consulted on new building projects, and sanctions them when they are not " contrary to the general demands of art and amenity," and to the special regulations (Regolamento Edilizio) of the city. These regulations contain provisions preventing alterations made at the will of private proprietors on buildings of artistic or historical interest, of which an official schedule has been drawn up.

In Germany, where there has been evinced during the last few years much interest in these questions of civic amenity,* local regulations of a somewhat drastic kind exist in many of the cities. For example, at Augsburg, in 1902 the magistrates issued local regulations concerning new buildings, and additions to or alterations of old ones, within the former circuit of the walls. In all such additions or alterations the style and character of the original must be conformed to, and this applies also to new work in the vicinity of old buildings "of historical, artistic, or architectonic importance." In the outer parts of the city, where these special restrictions do not apply, the regulations of 1902 prescribe attention to the artistic design of new edifices. Unsightly advertisement posters and bills, offensive colours, and by-structures which injure the look of the streets must be removed at the demand of the magistrate within a time fixed by him.

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* There is an Annual Congress devoted to the subject of the " Care of Monuments " to which the various German Governments, the towns, and bodies interested in art and amenity send representatives. A monthly journal exclusively concerned with the subject in all its bearings is also published, and is in part supported by the Minister of Public Works.

In towns like Rothenburg and Hildesheim, that are specially noted for their mediæval buildings, we should expect to find these restrictions on the freedom of the individual to spoil his house or his street, but there are cities also of the class of Frankfurt or Lübeck which are taking similar measures to preserve their ancient heritage. The former has suffered in our own immediate days an almost complete transformation, and is full now of new and handsome buildings; but just for this very reason the city fathers are taking measures to safeguard what remains of the older historical houses. The following are some of the provisions of a local building ordinance issued in 1900:—

"For the preservation of the artistic and antique character of the following historically interesting streets and public places [here follows a list of seven such localities] all buildings which are to be erected thereon, in so far as they are visible from the street, must be so treated externally that the existing aspect of the streets be not disfigured or essentially altered. . . . The local authorities shall decide whether the above prescriptions have been fulfilled, and before their decision they must consider a report from a special Civic Commission, consisting of the custodian of the city antiquities, a member of the Civic Commission for Art and Antiquities, two members of the Association of Architects and Engineers, and one member from the magistracy, who acts as president."

At Lübeck, in ordinances issued last year, we note that care is taken, not only for the city itself, but for the natural scenery around it.

"All new buildings and additions to existing structures must, on every side that is visible from thoroughfares or public places, be so carried out that they do not injure either the aspect of the streets or the natural surroundings of the city, nor injuriously affect the appearance of existing buildings, especially those of historical value.

"Placards, posters, bills, and other such arrangements for advertising, or coloured surfaces that disfigure the streets or the landscape, or injuriously affect historical buildings, are prohibited."

The subject of Ancient Monuments Acts has been mentioned above. These are measures of State, and have, as a rule, for their main object the preservation of the comparatively few monuments of outstanding importance which have a national value, like the "Monuments Historiques" or the "Ancient Monuments," which in France and Great Britain are scheduled as under the protection of the law. Several such Acts have quite recently been passed. Those of Italy, the Grand Duchy of Hesse, and certain Swiss cantons, date from 1902, and in Prussia, Austria, Bavaria, Spain, and other countries Acts of the kind are in preparation. The point of importance for the present purpose is that our British Act of 1882 compares unfavourably with foreign ones in that no power of compulsory purchase of a monument in danger is given under the Act to any authority, central or local. This is a power, of course, to be only employed as a last resort, but the existence of it is a very valuable safeguard, and we ought in this country to possess it. The Hessian Monument Act, which gives the State this power, also provides that the State may delegate the prerogative to local authorities, and in this way favours town autonomy. Countries which have no State Monument Acts possess and can exercise this power in the interest of a precious national possession endangered by the ill-will or carelessness of its proprietor. In France there were cases of its salutary application before the passing of the "Monuments Historiques" Act of 1887. In Belgium

M. Charles Buls, for long Burgomaster of Brussels, whose name is widely known in connection with enlightened urban politics, has informed the writer that in his own work he found the existence of this power of expropriation by the State of great value in carrying on negotiations with recalcitrant proprietors, though it was never actually put in force. Through such negotiations M. Buls has secured for all future time the preservation of the fine old guild houses round the Grand' Place at Brussels, though these remain actually in the hands of private proprietors. It would immensely strengthen the hands of those at work for the care of monuments if in Britain we could secure the recognition by Parliament and by the Law Courts of the principle, admitted in France, Prussia, Belgium, Italy, and, indeed, almost all European countries, that compulsory purchase is legitimate on æsthetic and historical grounds, as well as on those of public safety and convenience. For this, however, we shall probably have to wait till some glaring instance occurs to impress the public mind.

The other legal provisions and restrictions noticed in this paper are not beyond the present bounds of practical politics. For example, in 1899 the Corporation of Edinburgh obtained from Parliament some much-needed powers for the control of the abuses of advertisement. This is an object, as we have just seen, aimed at in some of the local regulations of German towns, and there is actually a provision on the subject inserted in the Hessian Monument Act of 1902, though this only applies to scheduled areas. In Prussia the House of Representatives passed a resolution in 1902 authorising local authorities to forbid the disfigurement by advertisements of scenes of natural beauty. For this country the action of the Edinburgh authorities created a new precedent, and might have attracted more attention than was actually vouchsafed to it.

It is certainly a case which encourages attempts at further action along the same lines. People in this country are moved, not by generalities or appeals to abstract reasoning, but by specific instances which strike the public attention, and rouse feeling and even indignation. Edinburgh obtained clauses for the control of advertisements because there seemed to be evidence of an extensive design on the part of large advertising syndicates, whose offices were in Liverpool, London, Glasgow, Manchester, &c., to turn the city, and especially the Old Town as seen from Princes Street, into a huge advertisement hoarding, whence posters should glare by day and wink by night at a long-suffering public! The true policy for those interested in these questions is to have reasonable demands formulated after careful consideration, and to keep these in readiness to be urged when psychological moments present themselves. The country might ring with addresses urging on general principles the need of æsthetic regulations, but we should be little nearer to a practical solution, whereas one definite provision or restriction secured from Parliament would help progress all along the line. In this country, both in politics and law, precedent is the Rimmon of our worship; and however much we may prefer to appeal to general principles and to reason, in the house of this Rimmon we are constrained to bow.

For the establishment of such precedents by successful appeals to the Legislature the Royal Institute of British Architects can render essential aid. There is no artistic body in the country that takes so broad an interest in all forms of art, especially those of a public kind, and were it not for this body one would think sometimes that art consisted only in painting pictures and selling them. The Institute by the mouth of its recent Presidents has, as we have seen, expressed in general terms the needs of the community in the matter of civic æsthetics. Such statements are necessary preliminaries to any effective action, and they have the advantage, not only of informing the public, but of eliciting, as has been the case here, some expression of opinion from official quarters. It is, however, no use merely to formulate general demands and then wait for some *deus ex machinâ* to come down and satisfy them.

It is too much to expect our ideal Minister of Fine Art to have all the initiative as well as all the taste and power. The Institute, through some of its committees, could provide a centre at which might be focussed the practical demands which make themselves felt in different towns and districts. Its office-bearers, who are ever ready under proper conditions to lend their time and energy for the benefit of the profession and the public, would be able to supply expert advice to civic bodies desirous of drawing out some comprehensive scheme of city extension, or of scheduling for protection certain buildings or certain parts of towns. When the time came for a town to apply to Parliament for authority to compel proprietors of suburban sites within the zone to lay these out for building in accordance with the comprehensive scheme, or to restrain injuries to fine classical compositions or delightful and still mediæval buildings or groups by alterations or incongruous additions, then would be the opportunity for common effort on the part of all concerned, and the weight of expert opinion which the Institute could provide would not fail to make its influence felt on Parliamentary Committees. In a word, we want to realise clearly what it will be reasonable to ask, and then to organise as strong a body of opinion as possible to press these demands home when opportunity presents itself.

INCORP. 1837 1887

9, Conduit Street, London, W., 10*th Dec.* 1904.

CHRONICLE.

THE NOVEMBER EXAMINATIONS.

Preliminary.

A Preliminary Examination, qualifying for *Probationership R.I.B.A.*, was held simultaneously in London and the provincial centres indicated below on the 8th and 9th ult. One hundred and ninety four candidates were admitted, and of these 58 were exempted from sitting. The remaining 136 were examined, with the following results :—

District	Number Examined	Passed	Relegated
London	55	41	14
Birmingham	9	6	3
Bristol	7	4	3
Cardiff	8	6	2
Leeds	15	10	5
Manchester	25	19	6
Newcastle	17	14	3
	136	100	36

The following are the names of the successful candidates together with those exempted, making a total of 158 newly registered Probationers :—

ABEL : Archibald James Thomas ; 47 Winchendon Road, Fulham, S.W. [*Master* : Mr. W. H. D. Caple].

ADAMSON : James Edgar ; 20 Apsley Crescent, Manningham, Bradford [*Master* : Mr. Horace E. Priestley].

ALLEN : Albert George Westerman ; "Glenmaye," Roundhay, nr. Leeds [*Master* : Mr. G. F. Bowman].

ANDERSON : James Clement ; 33 Cambridge Road, Lee, S.E. [*Master* : Mr. John Moir Kennard *].

BACON : Francis, jun. ; 6 York Mansions, Battersea Park, S.W. [*Masters* : Sir Arthur Blomfield & Sons *].

BALDWIN : Frederick Alfred ; 18 Perryn Road, East Acton, W. [Bedford County School].

BALL : Ernest Henry ; Dinnington Colliery, Dudley, R.S.O., Northumberland [*Master* : Mr. L. A. Loades].

BARBER : Charles Douglas ; Havering Well House, Romford, Essex [*Masters* : Messrs. Clare & Ross].

BARKER : Thomas Christopher ; 129 Queen's Parade, Scarborough, Yorks [*Master* : Mr. John Sheldon].

BARNES : Vernon Stuart ; Governor's House, H.M. Prison, Carmarthen, S. Wales [Carmarthen Grammar School].

BATTISCOMBE : Humphrey ; "Rowlands," St. Mary Cray, Kent [Architectural Association Day School].

BESWICK : William ; Queen's Park, Chester [Shrewsbury School].

BILLINGE : Basil Wilberforce ; "Ecclesbourne," Fir Grove Hill, Farnham, Surrey [*Master* : Mr. H. Reginald Poulter].

BLACKFORD : Arthur George ; 12 King's Avenue, Ealing, W. [Architectural Association Day School].

BLACKWALL : Charles Victor Henry Cheetham ; Biggin House, Hullandward, Derby [Dean Close School, Cheltenham].

BOOTHROYD : Bernard Joseph ; 135 Breakspear Road, Brockley, S.E. [Christ's College, Blackheath].

BOWNASS : James Everett ; 37 Upper Gloucester Place, Dorset Square, W. [*Master* : Mr. C. F. A. Voysey].

BRADLEY : Harry ; 34 Chesterfield Road, Blackpool [*Master* : Mr. J. T. Todd].

BUNCE : Henry Edgar ; Fulford Lodge, Warwick Road, Clapton, N.E. [Merchant Taylors' School].

BURGUM : William Henry ; 8 Beaufort Road, Edgbaston, Birmingham [Bourne College, nr. Birmingham].

BURR : Frederick Malcolm ; "Terlings," Orleans Road, Hornsey Rise, N. [*Master* : Mr. R. Creese Harrison *].

CATCHPOLE : Edgar Gooding ; 181 Princes Street, Ipswich [*Masters* : Messrs. Eade * & Johns].

CHADWICK : Richard Arnold ; Arnold House School, South Shore, Blackpool.

CHAPMAN : Richard Thwaite ; 47 Arkwright Street, Bolton, Lancs. [*Master* : Mr. Thomas E. Smith].

CLARKE : Percivale John ; Gayton Grange, Heswall, Cheshire [*Master* : Mr. J. Clarke *].

COGHLAN : Owen ; "Glendale," King's Road, Cheltenham [*Masters* : Messrs. Prothero * & Phillott].

COLDWELL ; Edward Smith ; 116 Chevening Road, N. Kensington, W. [*Masters* : Messrs. Pite * & Balfour *].

COMMIN : Frederick William ; 7 Bedford Circus, Exeter [*Master* : Mr. Fred. J. Commin].

COOKE : Charles ; 38 Gordon Road, Southend-on-Sea [*Master* : Mr. C. Cooke, sen.].

COOKE : Gordon Victor ; 3 Hyde Gardens, Eastbourne [Eastbourne College].

COWDELL : Charles Joseph Morton ; 12 Grey Friars, Leicester [*Master* : Mr. W. M. Cowdell].

CRABTREE : Jervis ; 3 Cunliffe Road, Blackpool [*Masters* : Messrs. R. Gorst & Son].

CRAWFORD : Joseph Douglas ; 24 Princes Street, Bishop Auckland, co. Durham [*Master* : Mr. F. H. Livesay].

DAVIES : Charles Edward Steedman ; Hafod-y-Coed, Llanfairfechan, N. Wales [*Master* : Mr. Herbert L. North].

DAVY : Clifton Robert ; The Chestnuts, Maidenhead [*Masters* : Messrs. Davy & Salter *].

DAW : Albany Harry Leopold ; 80 Connaught Road, Roath Park, Cardiff [*Master* : Mr. W. Beddoe Rees *].

DICKMAN : Harry Alderman ; 20 Burton Street, Sherwood, Nottingham [*Master* : Mr. W. D. Pratt].

DUNCAN : George ; 376 Bury Road, Rochdale [*Master* : Mr. L. Knowles].

EDWARDS, Spencer ; c/o J. C. Southcombe, Esq., Bridge Buildings, Barnstaple [*Master* : Mr. J. C. Southcombe].

ELSDON : William Henry ; 40 Marlborough Road, Dalston, N.E. [Northampton Institute].

EMDEN : William Samuel Alfred ; 21 Antrim Mansions, Hampstead, N.W. [*Master* : Mr. Walter Emden].

EVANS : Charles Glynn ; 13 New Street, Neath, South Wales [*Master* : Mr. J. Cook Rees].

FERNYHOUGH : Frank ; Catterick Hall, Didsbury, nr. Manchester [*Master* : Mr. John Ely *].

FISH : Douglas Herbert ; Chigwell School, Essex.

FLEMING : Herbert Sydney ; Moorlands, Bingley, Yorks [*Master* : Mr. Frederick Musto *].

FOGGITT : George Herbert ; Ash Field, Yeadon, nr. Leeds [*Master* : Mr. George Foggitt].

GAUNT : Oliver ; 57 High Street, Camden Town, N.W. [*Masters* : Messrs. F. Taperell & Haase].

GILBERTSON: Brian Seller Wilfrid; 35 Church Street, W. Hartlepool [*Master*: Mr. F. W. Turner].

GLOVER: Kenneth; West Lea, Wylam, R.S.O., Northumberland [Giggleswick Grammar School].

GOODCHILD: William; Craven House, 104 Hervey Street, Ipswich [*Master*: Mr. E. H. Coller].

HAKE: Guy Donne Gordon; c/o Colonel Edis, C.B., 14 Fitzroy Square, W. [*Master*: Colonel Edis].

HALLAS: Harold Wimpenny; Ivy Lodge, Trinity Street, Huddersfield [*Master*: Mr. J. Berry].

HARDY: John Clavering; Waverley Mount, Nottingham [*Master*: Mr. C. A. Broadhead *].

HARRISON: Samuel: 7 Grange Terrace, Linthorpe, Middlesbrough [*Master*: Mr. R. R. Kitching].

HARTNELL: Archibald Philip; 5 West Shrubbery, Redland, Bristol [*Master*: Mr. Harold Smith *].

HARVEY: John Stephen; 105 Marney Road, Clapham Common, S.W. [Christ's Hospital].

HATCHARD-SMITH: William Hornby; Charlwood, Epsom [Charterhouse School].

HAWLEY: Charles Dearman; 12 Martin Road, Ipswich [*Masters*: Messrs. Brown & Burgess].

HAWORTH: Harold Crook; 32 Stratford Place, Stump Lane, Chorley, Lancs. [*Master*: Mr. Dinsley].

HAWORTH: James Arnold Stephenson; Linthwaite Vicarage, Huddersfield, Yorks [*Master*: Mr. Joseph Berry].

HENDERSON: Irving; 8 Sydenham Terrace, South Shields, Durham [Westoe Road School, S. Shields].

HETT: Leonard Keir; c/o W. N. Wilson, Esq., 10 Hillmorton Road, Rugby [Rugby School].

HEWETSON: Angelo; 167 Bellevue Road, Leeds [*Masters*: Messrs. Perkin * & Bulmer *].

HOLLAND: Hugh Robberds; 35 Duke Street, Southport [*Masters*: Messrs. Briggs * & Wolstenholme *].

HOLLAND: Percy Estcourt; The Gables, Bexley, Kent [*Master*: Mr. Reginald Blomfield].

HOOD: Joseph Herbert; 32 Hornsey Street, N. [*Master*: Mr. Sydney W. Cranfield *].

HOWARD: Percy; 15 Oldham Road, Waterloo, Ashton-under-Lyne [*Master*: Mr. Ernest Woodhouse].

HUGHES: Thomas Charles; "Fredlys," Reedville, Claughton, Birkenhead [*Master*: Mr. Thomas W. Cubbon].

JACKSON: George Butterworth; Grosvenor Road, Newcastle-under-Lyme [*Master*: Mr. Elijah Jones].

JAQUES: Richard; The Woodlands, Knaresborough [*Master*: Mr. Alfred Bentley].

JEFFREY: John McNee; 21 Claverton Street, Pimlico, S.W. [L.C.C. Architects' Department].

JOHNSTONE: John Rutherford; Alloway Cottage, Ayr, N.B. [*Master*: Mr. R. A. Bryden *].

KAUFMANN: Gordon Beni; Homeville, Worcester Road, Sutton [*Master*: Mr. A. W. S. Cross *].

KENDALL: Sydney Victor; Penwortham, 28 Birdhurst Road, South Croydon [*Master*: Mr. James Williams].

KIPPS: Percy Kingsford; 93 Lewisham High Road, S.E. [*Master*: Mr. James Webster *].

KIRKMAN: Samuel Maynard; 21 Coombe Road, Croydon [*Masters*: Messrs. Chart, Sons, & Reading].

LAMBRICK: Fred.; 491 Stanton Road, Burton-on-Trent [*Master*: Mr. Jenkin].

LINTON: Tom Smith; 27 Grove Hill Road, Denmark Park, S.E. [*Masters*: Messrs. Harrison * & Ward *].

LLEWELLYN: Frederick Allan; 55 Larkfield Road, Richmond, Surrey [L.C.C. Architects' Department].

LOCKHEAD: Harold Stewart; 49 Landrock Road, Stroud Green, N. [*Master*: Mr. Albert E. Kingwell].

LUCK: Hayward James; High Street, Leighton Buzzard [*Master*: Mr. G. Herbert Manning].

LYNE: Charles Beresford; Ryecote, St. Luke's, Cheltenham [*Master*: Mr. H. W. Chatters *].

LYNN: George Newbert; 7 Victoria Street, Newark-on-Trent [*Master*: Mr. James Saunders *].

MACDONALD: Robert John; Ivy Bank, Attadale Road, Inverness [*Masters*: Messrs. Alexander Ross * & Robt. J. Macbeth].

McLEAN: Archibald John; 17 Lancaster Road, Brighton [*Masters*: Messrs. Oakden & Hawker].

MADELEY: Charles Stanbury; 109 Aston Lane, Perry Barr, Birmingham [*Master*: Mr. McKewan *].

MANNOOCH: Theodore Charles; 69 King Henry's Road, N.W. [*Master*: Mr. W. Henry White *].

MARSHALL: George Frederic; Ivy Lea, Hartington Street, Leek [*Masters*: Messrs. Wm. Leydon & Sons].

MARTINDALE: Christopher James Fawcett; Moor Yeat, Wetheral, Carlisle [*Master*: Mr. J. H. Martindale].

MATTHEWS: Harold Ewart; Holborn House, Sherborne Road, Yeovil, Somerset [*Master*: Messrs. Benson].

MILBURN: Stanley Wayman; 8 Thornhill Park, Sunderland [*Masters*: Messrs. Wm.* & T. R. Milburn *].

MILBURNE: William; 5 Seymour Street, Cockton Hill, Bishop Auckland [*Master*: Mr. F. H. Livesay].

MOLE: Charles Johns; 6 Westwell Street, Plymouth [*Master*: Mr. F. A. Wiblin].

MOOR: William; c/o P. B. Rigg, Esq., Bank Chambers, Morecambe [*Master*: Mr. Percival B. Rigg].

MOORE: Ernest Josiah Edwards; 87 Dock Street, Newport, Mon. [*Masters*: Messrs. Habershon, Fawckner, & Co.].

MORETON: Charles Oscar; 57 Carlyle Road, Edgbaston, Birmingham.

MÜLLERHAUSEN: Walter Ernest; 25 Tylney Road, Forest Gate, E. [*Master*: Mr. A. J. Wood].

NEAT: William Wilberforce; Anchor House, Brynmawr [*Master*: Mr. F. Baldwin].

ORAM: Denis Edwin; 15 Oakfield Road, Croydon [*Master*: Mr. H. Berney *].

ORTON: William Aylott; 62 Avenue Hill, Harehills, Leeds [*Master*: Mr. R. Fielding Farrar *].

PARK: William; 15 Ladbroke Square, W. [*Masters*: Messrs. Read * & MacDonald *].

PEARSE: Geoffrey Eastcott; P.O. Box 4829, Johannesburg [*Masters*: Messrs. Brown & Cottrill].

PHILLIPS: Arthur Todd; Rivermead, Rickmansworth, Herts [*Master*: Mr. C. F. A. Voysey].

PHILLIPS: Harold Graham; 8 Riverdale Terrace, Petersham Road, Richmond, Surrey [Queen Elizabeth's School, Kingston-on-Thames].

PHILPOTT: Arthur Douglas; 93 Maison Dieu Road, Dover [*Masters*: Messrs. Fry & Miller].

PIERCE: Robert; Mona Cottage, Llanfair P.G., Anglesey [*Master*: Mr. Harold Hughes *].

PLUMLEY: Donald John Grant; Derrystone, Tyndall's Park Road, Clifton, Bristol [*Master*: Mr. F. Bligh Bond *].

PONTING: Ralph Skeate; 25 Somerset Street, Kingsdown, Bristol [*Master*: Mr. H. C. H. Tarr].

PRICE: William Willoughby; Cardross, 7 Brompton Avenue, Liverpool [Liverpool University].

PRYNNE: Charles Edward Fellowes; Burnaby House, Burnaby Road, Bedford [Bedford Grammar School].

REILLY: Stanislaus George; 9 Powis Square, Bayswater, W. [City & Guilds Technical College].

RELPH: Wilfred George; 22 Chatsworth Square, Carlisle [*Masters*: Messrs. Oliver * & Dodgshun *].

REYNOLDS: Leonard Arthur; Barr House, Newington, Hull [Hymers College].

RICHARDSON: John Blythe; West View House, Shotley Bridge, co. Durham [*Masters*: Messrs. Newcombe * & Newcombe *].

RICHARDSON: Philip; 2 Malvern Road, Thornton Heath, S.E. [*Master*: Mr. Ernest Bates *].

RICHES: Sydney; "Greeba," 35 Culverden Road, Balham, S.W. [*Master*: Mr. Richard Peters].

ROBERTS: Frederick Adrew; Ty Brith, Mold [*Master*: Mr. James Strong].
ROBERTSON: Stuart; Benview, Dumbarton, Scotland [Dumbarton Academy].
ROBINSON: Frederick James; 2 Oakhurst Terrace, Benton, Northumberland [*Master*: Mr. J. J. Hill].
ROBSON: Frederick Charles; 11 Overton Road, Brixton, S.W. [*Master*: Mr. C. G. Keogh].
ROLLEY: Horace Edwin; 5 Latimer Street, Bulwell, Nottingham [*Master*: Mr. Ernest R. Sutton].
ROSS: John Alister; 47 Spottiswoode Street, Edinburgh [*Masters*: Messrs. Ross * & Macbeth].
RUBIE: George Crowhurst; 74 Maison Dieu Road, Dover [*Masters*: Messrs. Jennings & Duthoit *].
RUDDLE: Harold John; 107 St. Alban's Road, Watford, Herts [*Master*: Mr. W. H. Syme *].
RYLATT: Arthur; Sculcoates House, Beverley Road, Hull [*Master*: Mr. T. Beecroft Atkinson].
SAGAR: William Henry; Arnold House School, South Shore, Blackpool.
SCALES: Sydney Geoffrey; 16 St. John's Road, Westcliff-on-Sea, Essex [*Masters*: Messrs. Clare & Ross *].
SCAMMELL: George Downing; 56 Lower Redland Road, Redland, Bristol [*Master*: Mr. Thomas Scammell].
SHEPPARD: Samuel Marshall Philpott; "Glencoe," Frimley Road, Camberley, Surrey [*Master*: Mr. Walter Sarel].
SLATER: Arthur Squire; 5 Tynevale Terrace, Bensham, Gateshead [*Master*: Mr. F. M. Dryden].
SPENCER: Thomas; "Halebryce," Upper Park Fields, Putney [*Master*: Mr. C. Stanley Peach *].
STELJES: William Charles; Mount View, Mount Pleasant Road, South Tottenham, N. [*Master*: Mr. G. P. Pratt].
STEMP: Godfrey John Thomas; Llanarthney, Clytha Park, Newport, Mon. [Newport Intermediate School].
STOUT: John Joseph; 4 Corporation Street, Stockton-on-Tees [*Master*: Mr. W. H. Linton].
STURGEON: Robert Victor; 23 Range Road, Whalley Range, Manchester [*Master*: Mr. Ernest Woodhouse].
SUDDARDS: Frank; 52 Horton Grange Road, Bradford, Yorks [*Master*: Mr. Leonard Galloway].
SUNTER: Michael Calvert; 15 Holland Road, Chorlton-cum-Hardy, nr. Manchester [Grammar School, Chorlton-c.-Hardy].
TAIT: Thomas Smith; 7 Maxwellton Street, Paisley, Scotland [*Master*: Mr. J. J. Burnet,* A.R.S.A.].
TAYLORE: John Hammond; 1 Park View, Whitley Bay, R.S.O., Northumberland [*Master*: Messrs. Watson & Curry].
THOMSON: Frank Drummond; 322 Blackness Road, Dundee, Scotland.
TURNER; Albert Isaac; 2 Avenue Road, Forest Gate, E. [*Master*: Mr. Henry Hall *].
WALMSLEY: Archibald; 11 Dale Street, Haslingden, Lancashire [*Masters*: Messrs. Haywood & Harrison].
WALTER: Robert A.; 46 Cavendish Road, Harringay, N. [*Masters*: Messrs. Barrett & Driver].
WATKINS: Stanley Kenyon; Myrtle Bank, Nelson Street, Rotherham, Yorks [*Master*: Mr. J. E. Knight].
WELCH: Herbert Arthur; 3 Brockley Grove, Crofton Park, S.E. [*Master*: Mr. J. R. Moore-Smith *].
WHEATLEY: William Bailey; 112 Park Grove, Hull [*Master*: Mr. J. M. Dossor *].
WHINCOP: Walter George; 74 Filey Avenue, Stoke Newington, N. [Parmiter's School].
WHITEHOUSE: Arthur Eli Mitchell; 12 Gibsons Road, Heaton Moor, Stockport [*Master*: Mr. T. A. Fitton].
WHITTAKER: Henry; 167 Manchester Road, Accrington, Lancs. [*Masters*: Messrs. Haywood & Harrison].
WHITTINGHAM: Howard Shadwell; 24 Breakspear Road, St. John's, S.E. [*Master*: Mr. W. D. Caroë *].
WICKS: Herbert Graham; 212 Mary Vale Road, Bournville, nr. Birmingham [*Master*: Mr. W. Alex. Harvey].
WILLIAMS: John Paul; Glandwe, Llangollen, North Wales [*Masters*: Messrs. Bremner, Smith, & Bremner].
WILSON: Frederick Candelent; 47 Frederick Road, Edgbaston, Birmingham [*Masters*: Messrs. Essex,* Nicol,* & Goodman].
WINTER: Norman Frederick Smagg; Arnold House School, South Shore, Blackpool].
WOOD: Leonard Sutton; Chalfont House, 20 Queen Square, W.C. [*Master*: Mr. F. W. Ridgway *].
WOODIN: Walter Edgar; 11 Thornsett Road, Anerley, S.E. [*Master*: Mr. Arthur W. Cooksey *].
WOOLLATT: John; 6 Shakespeare Villas, Nottingham [*Masters*: Messrs. Evans * & Son].
WRIGHT: Charles Henry; 49 Market Square, Aylesbury, Bucks [*Master*: Mr. G. Herbert Manning].

The asterisk (*) denotes members of the Institute.

Intermediate.

The Intermediate Examination, qualifying for *Studentship R.I.B.A.*, was held simultaneously in London, Bristol, Leeds, and Manchester on the 8th, 9th, 10th, and 11th ult., with the following results:—

District	Number Examined	Passed	Relegated
London	90	44	46
Bristol	11	5	6
Leeds	9	8	1
Manchester	11	5	6
	121	62	59

The following are the names of the passed candidates, given in order of merit as placed by the Board of Examiners:—

NOTT: George [*Probationer* 1903]; 8 Market Street, Leicester [*Masters*: Messrs. Goddard * & Co.*].
HARVEY: Walter [*Probationer* 1903]; The Lawn, Kennington, Ashford, Kent [*Master*: Mr. Arthur Wells *].
FRASER: Percival Maurice [*Probationer* 1903]; 26 Killieser Avenue, Streatham Hill, S.W. [*Master*: Mr. Thomas Arnold *].
SAMSON: Hayward Lewis [*Probationer* 1900]; "Braeside," 23 Elmbourne Road, Balham, S.W. [*Master*: Mr. W. Harvey *].
WEBBER: Sidney Joseph [*Probationer* 1903]; 14 Craufurd Rise, Maidenhead [*Master*: Mr. C. R. Davy].
WAGHORN: Sydney Stanley [*Probationer* 1893]; 10 Pemberton Gardens, St. John's Park, N. [*Master*: Leonard V. Hunt *].
WOOD: Leonard Sutton [*Probationer* 1904]; Chalfont House, 20 Queen Square, W.C. [*Master*: Mr. Frederick W. Ridgway *].
DALTON: Percy [*Probationer* 1903]; 22 Railway Walk, Birkdale, nr. Southport [*Master*: Mr. Gilbert Wilson].
WREN: Edward Lancelot [*Probationer* 1901]; 94 Sparkenhoe Street, Leicester [*Master*: Mr. Albert Herbert *].
BEESTON: Humphrey Albert [*Probationer* 1902]; Eastbrook Place, Dover [*Master*: Mr. Wm. Beeston].
CABLE: James Sydney [*Probationer* 1902]; 11 Acre Lane, Brixton, S.W. [*Master*: Mr. Henry T. Hare *].
LYNHAM: Arthur George [*Probationer* 1901]; 84 Park Road, Polsloe Park, Exeter [*Master*: Mr. Percy Morris *].
POTTER: Charles Henry [*Probationer* 1900]; The Dimple House, Matlock Bridge [*Masters*: Messrs. Woodhouse * & Willoughby *].

OLIVER : Frederick George [*Probationer* 1902] ; Embleton House, Tweedmouth, Berwick-on-Tweed.

AITKEN : Andrew Danskine [*Probationer* 1904] ; 2 Forsyth Street, Airdrie [*Master* : Mr. James Miller].

BLACKBURN : Robert Herbert [*Probationer* 1903] ; 8 Fairbank Road, Manningham, Bradford [Bradford Technical College].

BLACKADDER : Henry [*Probationer* 1900] ; Edrom, Broughty Ferry, W., Scotland [*Master* : Mr. T. Martin Cappon *].

SCHOFIELD : William Peel [*Probationer* 1895] ; "Southfield," 40 Clarendon Road, Leeds [Leeds School of Art].

BESWICK : Alfred Edward [*Probationer* 1903] ; Westlecot Road, Swindon, Wilts [*Master* : Mr. R. G. Beswick].

PARRY : George Herbert [*Probationer* 1904] ; The Den, Upper Warlingham, Surrey [*Master* : Mr. Mervyn Macartney].

MELLOR : Wilfrid Law [*Probationer* 1902] ; 2 Park View, Halifax [*Masters* : Messrs. Charles F. L. Horsfall & Son].

DITCHBURN : David William [*Probationer* 1901] 34 Fillebrook Road, Leytonstone, Essex [*Masters* : Messrs. Todd & Wingley].

ROBERTS : Robert George [*Probationer* 1901] ; 133 Corporation Street, Stafford [*Master* : Mr. A. G. Dalzell].

FIFOOT : Louis Stanley *Probationer* 1901] ; Ingledene, Victoria Road, Penarth [*Masters* : Messrs. Seddon * & Carter *].

BAMFORD : Frederick Noel [*Probationer* 1904] ; 29 Bloomsbury Square, W.C. [*Master* : Mr. E. Bartley, New Zealand].

ATTLEE : Thomas Simons [*Probationer* 1902] ; Westcott, Putney, S.W. [*Master* : Mr. C. E. Barry *].

ATWELL : Frank Leslie [*Probationer* 1901] ; 12 Wrottesley Road, Plumstead, S.E. [*Master* : L.C.C. Architects' Department].

BULMER : Francis Holles [*Probationer* 1902] ; 14 Malwood Rd., Balham, S.W. [L.C.C. Architects' Department].

COLLINGS : Tilleara Horace Osman [*Probationer* 1895] ; 57 Carline Road, Hove [*Master* : Mr. H. J. Keates].

DICKINSON : William Francis [*Probationer* 1902] ; 162 Buckingham Palace Road, S.W. [*Master* : Mr. S. Gambier Parry *].

FIRTH : Joseph Percy [*Probationer* 1899] ; The Croft, Walton, near Wakefield [*Master* : Mr. Frederick Simpson].

FITCH-JONES : Basil Wallis [*Probationer* 190] ; The Lodge, Buckhurst Road, Bexhill [*Master* : Mr. F. H. Humphreys *].

FRENCH : Harold [*Probationer* 1903], 52 Blenheim Street, Hull [*Master* : Mr. B. S. Jacobs].

GANDY : Edward Hall [*Probationer* 1902] ; 11 Alwyne Road, Canonbury, N. [*Master* : Mr. H. W. Rising *].

GASK : John Harold [*Probationer* 1898] ; 4 Cranwick Rd., Stamford Hill, N. [*Masters* : Messrs. Barker & Ellis].

GOODCHILD : John Howard [*Probationer* 1904] ; Elmwood Lodge, Long Lane, Finchley [*Master* : Mr. J. Wallis Chapman].

GOULD : George Harry Bertram [*Probationer* 1900] ; 46 Bolton Lane, Ipswich [*Master* : Mr. Leighton].

HARGREAVES : John Horner [*Probationer* 1899] ; 40 St. Maur Road, Fulham, S.W. [*Master* : Mr. E. G. Steade].

HEALEY : Alfred John [*Probationer* 1900] ; 70 Regent's Park Road, N.W. [*Master* : Mr. F. W. Hunt *].

HOOPER ; Frank Billett [*Probationer* 1902] ; 65 Nelson Street, C.-on-M., Manchester [*Masters* : Messrs. Clegg * & Son].

JACKSON : Walter [*Probationer* 1901] ; 28 Bedford Road, Hitchin, Herts [*Master* : Mr. F. W. Kinneir Tarte].

KERR : Walter [*Probationer* 1903] ; 22 Upper Richmond Road, Putney, S.W. [*Master* : Mr. T. E. Collcutt *].

LAY : Harry George [*Probationer* 1902] ; The Laurels, London Road, Wellingborough [*Masters* : Messrs. Talbot Brown * & Fisher *].

MACKAY : Alexander Sinclair Wemyss [*Probationer* 1900] ; 78 Longbridge Road, Barking, Essex [*Master* : Mr. Louis Ambler *].

MARTIN : Moritz Richard [*Probationer* 1902] ; 61 St. Mary's Grove, Chiswick [*Master* : Mr. J. W. S. Burmester *].

MILLWOOD : Alfred Mawson [*Probationer* 1901] ; 174 Castlenau, Barnes, S.W. [*Master* : Mr. W. Hilton Nash *].

NEWBOLD : George Edward Hanson [*Probationer* 1901] ; 3 Lewis Street, Gainsborough [*Master* : Mr. E. F. Green].

PAGE : George Wilfred [*Probationer* 1900] ; c/o John Ormrod, Esq., Court Chambers, 15 Mawdsley Street, Bolton [*Master* : Mr. John Ormrod*].

PIRIE : James Alexander [*Probationer* 1902] ; 9 Witherington Road, Highbury, N. [*Master* : Mr. Charles FitzRoy Doll*].

PORTER : Henry Arthur [*Probationer* 1900] ; 131 Old Road, Gravesend [*Master* : Mr. Edmund J. Bennett *].

RIGBY : Alfred [*Probationer* 1901] ; 8 Springbridge Road, Alexandra Park, Manchester [*Master* : Mr. Jesse Horsfall*].

SECCOMBE : Henry Edward [*Probationer* 1900] ; 13 Victoria Road, Clapham Common, S.W. [*Master* : Mr. J. T. Lee*].

SLAUGHTER : Albert Frank [*Probationer* 1902] ; Gairloch, Alexandra Road, Reading [*Masters* : Messrs. Millar & Cox].

SMYTHE : James Conran [*Probationer* 1901] ; 1 Anglesey Villas, Ford Park, Mutley, Plymouth [*Masters* : Messrs. King * & Lister].

SUTTON : Basil Hope [*Probationer* 1902] ; Basildon, near Reading, Berks [*Master* : Mr. Herbert L. North].

TRAVERS : Wilfred Irwin [*Probationer* 1901] ; 2 Phillimore Gardens, Kensington [*Master* : Sir Aston Webb, R.A.*].

TRENCH : Gilbert Mackenzie [*Probationer* 1901] ; 50 Marmora Road, Honor Oak, S.E. [*Masters* : Messrs. Scott & Hanson].

TYNDALL : Richard John [*Probationer* 1898] ; 17 Castellain Road, Maida Vale, W. [*Masters* : Messrs. Kincaid, Waller, Manville, & Dawson].

WALKER : Frederick Arthur [*Probationer* 1901] ; Ghyllcroft, Tanza Road, Hampstead, N.W. [*Masters* : Messrs. Stevenson * & Redfern*].

WILLS : John Bertram [*Probationer* 1902] ; 15 Berkeley Square, Clifton, Bristol [*Master* : Mr. Frank W. Wills*].

WYLLIE : William Barnet [*Probationer* 1903] ; 300 Dalston Lane, N.E. [*Masters* : Messrs. Niven * & Wigglesworth*].

YEO : Samuel Arthur Speare [*Probationer* 1903] ; Osborne Villa, Church Road, St. Thomas's, Exeter [*Master* : Mr. J. Archibald Lucas].

The asterisk (*) denotes members of the Institute.

Final.

The Final and Special Examinations, qualifying for candidature as *Associate R.I.B.A.*, were held in London from the 25th November to the 2nd December. Seventy-three candidates were examined, and the following thirty-three passed, the others being relegated to their studies :—

AMERY : Thomas Ford [*Probationer* 1897, *Student* 1901] ; 62 Sydney Street, Chelsea, S.W.

ANDERSON : Douglas [*Probationer* 1898, *Student* 1901] ; 103 South Hill Park, Hampstead, N.W.

BAX : Edwin George Goodson [*Probationer* 1897, *Student* 1902] ; "Elmshurst," Rosenthal Road, Catford, S.E.

BEAUMONT: William Somerville [*Probationer* 1893, *Student* 1896]; 10 St. James's Square, Manchester.
BRIGGS: Martin Shaw [*Probationer* 1899, *Student* 1902]; Wharfebank, Otley, Yorks.
BROCKLESBY: John Sydney [*Probationer* 1897, *Student* 1901]; 116 Jermyn Street, St. James's, S.W.
BROOKE: John Tallents Wynward [*Probationer* 1898, *Student* 1901]; The Hive, Bowdon, Cheshire.
CALLOW: Charles Fry [*Probationer* 1899, *Student* 1901]; 71 London Road, St. Leonards-on-Sea.
CARTER: Charles Pitwood [*Special Examination*]; The Hut, Mansfield.
ELLIS: George Rowland [*Probationer* 1895, *Student* 1897]; 23 Peel Grove, Longsight, Manchester.
FLETCHER: John Alfred [*Probationer* 1895, *Student* 1901]; 104 Stretton Road, Leicester.
FREAD: Horace Charles [*Special Examination*]; Walton Road, East Molesey.
FREEMAN: Willie Josiah [*Probationer* 1900, *Student* 1901]; 23 Woodbine Terrace, Halifax.
GILL: Charles Lovett [*Probationer* 1901, *Student* 1902]; 17 Albert Street, Regent's Park, N.W.
GOLDING: Herbert Haylock [*Probationer* 1902, *Student* 1903]; 56 Plum Lane, Plumstead, Woolwich.
HINCHLIFFE: Percy Archibald [*Probationer* 1896, *Student* 1899]; 14 Regent Street, Barnsley.
HORROCKS: Percy Aspden [*Probationer* 1900, *Student* 1901]; 69 Freegrove Road, N.
HUBBACK: Arthur Benison [*Special Examination*]; Kuala Lumpur, Selangor, Federated Malay States.
JENKINSON: David Barnes [*Probationer* 1902, *Student* 1903]; "Holmesfield," Kimberworth, Rotherham.
JOHNSON: George Alfred [*Probationer* 1902, *Student* 1902]; Stafford Lodge, Stafford Road, Croydon.
MILLER: James [*Probationer* 1898, *Student* 1900]; 30 Beechhill Road, Sheffield.
NICHOLAS: Charles [*Special Examination*]; 59 Streathbourne Road, Tooting, S.W.
NORTH: Herbert Luck [*Special Examination*], Llanfairfechan, N. Wales.
PALMER: Charles Thomas [*Probationer* 1898, *Student* 1900]; 42 Castlewood Road, Stamford Hill, N.
PATERSON: Claude [*Probationer* 1900, *Student* 1902]; Dudley House, Bowdon, Cheshire.
POWYS: Albert Reginald [*Probationer* 1900, *Student* 1902]; Denton, Grantham, Lincs.
QUIGGIN: Edgar [*Probationer* 1900, *Student* 1901]; Tunstall, Blundellsands, Liverpool.
SALOMONS: Gerald Sanville [*Probationer* 1899, *Student* 1901]; 78 King Street, Manchester.
SMALLMAN: Henry Richard George Strong [*Probationer* 1900, *Student* 1902]; Wrissel Lodge, Wimbledon Common, S.W.
SMITH: Neil Campbell [*Probationer* 1900, *Student* 1900]; Craigielands, Moffat, N.B.
SOUSTER: Ernest George William [*Probationer* 1899, *Student* 1902]; 24 East Park Parade, Northampton.
THOMPSON: Charles Joseph [*Probationer* 1899, *Student* 1901]; 15 Earlsfield Road, Wandsworth, S.W.
VINING: John Norman Randall [*Probationer* 1899, *Student* 1900]; Grove House, Jews' Walk, Sydenham, S.E.

The following shows the number of failures in each subject of the Final:—

I.	Design	28
II.	Mouldings &c.	34
III.	Materials	18
IV.	Sanitation	14
V.	Specifications	11
VI.	Construction: Foundations, Walls, &c.	19
VII.	Construction: Iron and Steel, &c.	27

The Ashpitel Prize.—On the recommendation of the Board of Examiners the Council have decided to award this Prize to Mr. Charles Lovett Gill [*Probationer* 1901, *Student* 1902], he being the candidate who has most highly distinguished himself in the Final Examinations held during the current year.

The Registration Committee.

The motion which in accordance with notice was brought forward by the Chairman of the Meeting last Monday (Mr. T. E. Collcutt, *Vice-President*) had reference to the Resolution passed by the Institute at the General Meeting of the 9th January last—viz. "That a Committee, consisting of the Council of the Royal Institute of British Architects and representatives of the Allied Societies, be appointed to consider the principle of registration, and to report thereon to a Special General Meeting."

The Chairman moved "That the Registration Committee appointed by the General Body be allowed to co-opt additional members."

In reply to a question from Mr. Wm. Woodward [*A.*] as to whether the Meeting might have the names of the gentlemen proposed to be added, the Chairman stated that he thought the Committee ought to be given the power they desired, and that the selection of the additional members should be left to their discretion. Further, in answer to Mr. H. Hardwicke Langston [*A.*], he stated that the Committee had given no reason why they wished to co-opt members.

The motion, being put from the Chair, was carried against three dissentients.

Official Assessorship of Architectural Competitions.

At the same meeting Mr. G. A. T. Middleton [*A.*] moved in accordance with notice, "That it be referred to the Council to consider the advisability of appointing an Official Assessor of Architectural Competitions." All of them, he said, had had experience in competitions, and they knew that they turned out very unsatisfactory sometimes. He had had experience often as a competitor, once as an assessor, once as a promoter; and of all the difficulties he thought the difficulties of the promoter were much the greatest. The Institute had tried to get over these difficulties in various ways. They had striven for the appointment of a professional assessor to all competitions, and to a large extent they had succeeded; but, while their assessors were always selected as well-known architects and honourable men, he doubted if in every case they had proved themselves to be experienced assessors—that is to say, men who had given any considerable part of their time to that kind of work. What was wanted was not only expert architects to assess in competitions, but, above everything, expert assessors; and he brought forward his motion with the idea that it might be debated in the Council and considered by the General Body whether the Institute could appoint one or more gentlemen to act as official assessors. That would not necessarily be invariable—there might be circumstances which would take it out of the individual's hands—but official assessors should be appointed to act as a general rule.

The Chairman accepted the motion on behalf of the Council. The matter would be referred to them, and they would give it their earnest consideration.

Plenum Ventilation and Royal Victoria Hospital, Belfast.

Erratum.—In the "Total Cost" column of the table on p. 64 of the last issue the figures for 1903 should be £10,509. 15*s.* 9*d.*—not £14,509. 15*s.* 9*d.*, as there printed.

The following is an extract from a letter received from Mr. Bibby which we consider should be published:—

"My attention has been directed to page 64 of the last issue of the Journal of the R.I.B.A., where it is stated by Messrs. Henman, Cooper, & Lea that the Royal Victoria Hospital was designed as a whole 'for 400 patients and staff.'

"But if you will refer to page 94 of your issue for the 19th December 1903 you will discover that Mr. William Henman there stated that the hospital was planned for '300 patients and a large staff.'

"The latter figures being correct, so also are my statements based upon them; and therefore it will be seen that as 1,742 tons of coal were used during one year, about six tons per patient would have been used had the hospital been filled; but as it was not more than two-thirds occupied, the consumption was at the rate of about nine tons per resident patient."

DISCUSSION ON REINFORCED CONCRETE.

Mr. T. E. Collcutt, *Vice-President*, in the Chair.

The discussion of the Papers "Construction and Strength of Reinforced Concrete Columns," * by Mr. Wm. Dunn [*F.*], and "Monolithic Construction in Hennebique's Ferro-Concrete," * by Monsieur L. G. Mouchel, read at the meeting of the 21st November, took place at the General Meeting of the 5th inst., on the conclusion of the business part of the Meeting. Monsieur Mouchel wrote from Paris expressing regret at his inability to be present. His assistant, however, Mr. J. S. E. de Vesian, Assoc.M.Inst.C.E., read the subjoined communication from him, and afterwards described and illustrated by lantern slides a large number of buildings here and on the Continent carried out on the Hennebique system of ferro-concrete construction.

M. MOUCHEL'S communication above referred to was as follows:—

I have read Mr. Dunn's Paper, the nature and contents of which were quite unknown to me when I wrote my own Paper, which, as it happens, is a perfect reply to the former. Mr. Dunn gives at great length particulars of the test of a pillar, the construction of which would be an impossibility in actual practice. A pillar so reinforced I cannot consider otherwise than as an interesting toy. No builder would consent to trust to such an arrangement for the support of a building; above all, of one subject to unequally distributed heavy loads. Any severe eccentric load or side-thrust or pull would cause its collapse. It would work exactly like the sides of an accordion.

The author may have wished to demonstrate the virtues of the spiral reinforcement. There is nothing new to us in that arrangement. As early as March 1900 I was led to adopt it for a special purpose in designing my patent ferro-concrete screw pile, which, I believe, gave M. Considère the idea of studying that form of reinforcement.

The advantages of compressing the internal core of a concrete pillar by a belt of closely disposed links is well known. I frequently apply that method when I find it useful: I mean when without unduly increasing the scantling of a pillar I wish it to carry a load that with links more distantly spread would throw too great a load on the core of the pillar. This can be very safely accomplished with links placed perpendicular to the axis of the pillar without increasing the cost of hand labour—I mean by ordinary workmen. The spiral arrangement would compel us to rob other industries—for instance, the spring mattress industry—of its skilled hands; and the cost of a pillar so constructed would be appalling, and it would be well if the author told us what expenditure it entailed.

That spiral bound pillar broke under a pressure of only 126 tons per square foot, a very poor result indeed, which very badly repaid the great trouble and expense spent upon it. It is true that the author gives at page 39 reasons to explain that failure. I quite agree with him that the time rate of loading a homogeneous material—for instance, steel—under the hydraulic press makes practically no difference in the result. It is quite another affair with a heterogeneous material like ferro-concrete, and it is a fresh illustration that the new material has its own laws, which must be taken into account, and that inexperienced hands who try to formulate laws of their own on what they see or fancy they see in hydraulic press experiments of ferro-concrete are apt to go wrong. If really reliable results are required the hydraulic press as a means of loading must be abandoned.

At pages 33 and 38 the author mentions tests of a Hennebique ferro-concrete pillar made by a Mr. Gary at Charlottenburg, which was destroyed at a pressure of 234 tons per square foot. From the diagram section in the paper, that pillar seems to have contained 4 per cent. of reinforcement.

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* Printed in the Journal for 26th November.

Now if we pass to a table on page 40, which, according to the author, will enable us to find at a glance the safe load to place on any ferro-concrete pillar, we find that according to that table the safe load to put on that Hennebique pillar is only 30 tons. But with a perversity to which we are accustomed with ferro-concrete we find that that pillar declined to conform to the table; it would not break at less than 160 tons.

I have said, and I now deliberately repeat, that we are neither the slaves of our methods nor of our formulas. With a conscientious preoccupation for the security of our work, we determine in every case the quantities of concrete and of steel which every part of the construction requires, without any preoccupation of the proportion which the two materials shall ultimately bear to each other. It is only after this part of our task has been accomplished that we are aware what that proportion is. To attempt to determine it beforehand is sheer waste of time. Therefore I repeat that those who try to force upon ferro-concrete specialists their ingenious tables and formulas are wasting their time sadly, and we refuse to follow them.

This shows the danger, to which I referred in my paper, of these formulas and tables of self-constituted ferro-concrete experts who have never had any practice in handling the new material. I exhibited on the 21st ult. a diagram showing at what absurd results we should arrive if we followed them. It is to be hoped that their influence on the framing of the building by-laws will never prevail.

It is one of the peculiarities of ferro-concrete that it is an absolute impossibility to properly adopt for it prearranged tables. With a very natural desire to cheapen and facilitate our work, M. Hennebique has for years attempted to design such tables. After him I did the same, and very reluctantly we had to recognise that every case is, and must be treated as, a fresh problem, and considered on its own merits.

Mr. Dunn at page 41 of his paper affirms that in our calculations we assume that the concrete is shortened forty times more than the metal under similar stress per square inch. This assertion has no basis whatever; nor is it exact to say that we take no account of the links except as means of preventing the buckling of the main rods. Although, as I said above, I have great distrust of results obtained by using the hydraulic press in testing ferro-concrete samples, I have made a great many such tests. I give two of them made at long intervals of time and entirely outside of my control.

In April 1901 the Mersey Dock and Harbour Board Co. tested at Liverpool a Hennebique pillar by their own hydraulic press, and the section was 14 inches by 14 inches. They destroyed it at 245 tons per square foot. The factor of safety calculated on the usual basis for concrete and steel gave a factor of safety of 4·75.

Recently Mr. S. Sidney Platt, the borough engineer of Rochdale, sent a sample pillar made under his direction to the School of Technology at Manchester. The section was 10 inches by 12 inches. It was destroyed by a pressure of the hydraulic press equal to 343 tons per square foot. The factor of safety in this case was 3·05.

For a good many years past we have had pillars in use under constantly varying conditions; for instance, under grain silo bins, which, as is well known, are constantly loaded or emptied without regard to the surrounding bins, and they have stood these suddenly increasing and eccentric loads admirably.

Such facts are worth loads of theories, formulas, and diagrams.

Mr. WILLIAM DUNN [*F.*], who had not sufficiently recovered from his illness to be present at the meeting, sent the following remarks, which were read by his partner, Mr. Robert Watson [*A.*] :—

Three questions have been asked by letter as to matters in this Paper to which I am pleased to reply. The first is as to the effect of temperature on the rate of setting of cement. This has been fully investigated by Professor Tetmajer in his communications from the Laboratory of the University at Zurich, Switzerland. As these reports are not easily got in this country, I may say that extracts with admirable diagrams showing the effects of temperature on setting will be found in Johnson's *Materials of Construction*, published by Wiley & Son of New York, pages 414 and 616 of our copy, which is the first edition of the book, and is in the Institute Library.

The following extract from a lecture by Herr Steinbrück, of Portland Cement Works, Karlstadt-am-Main, gives the results in their ordinary limits :—

"The results of the following investigation as to the 'different ways in which the time of setting and the tensile strength are influenced' may be expressed by means of graphical representations (curves). For this research, a cement was used whose normal time of setting was $1\frac{1}{2}$ hours and normal tensile strength 23 kilos after 28 days.

"In the experiments both cement and water were brought to the temperature of testing, and the influence of this condition is shown by the fact that one and the same cement, which at the normal temperature 16° C. had a setting time of 1 hour 30 minutes, at 7° C., that is, winter temperature only, set in 5 hours, whilst at

30° C., or high summer temperature, it set in 26 minutes. If the temperature be left out of consideration, a medium setting cement may therefore be found either slow or quick setting, and many complaints are thereby explained.

"The experimental results were as follows :—

> "At 7° C. (winter temperature), the time of setting was 5 hours.
>
> "At 10° C. (winter temperature), the time of setting was 3 hours.
>
> "At 16° C. (normal temperature), the time of setting was 1 hour 30 minutes.
>
> "At 23° C. (high summer temperature), the time of setting was 50 minutes.
>
> "At 30° C. (high summer temperature), the time of setting was 26 minutes.

"When cement, mortar or concrete sets at a temperature below freezing point, the water it contains is likely to freeze ; the mortar cannot properly harden and it becomes disintegrated.

"Mortar used in frosty weather is accordingly mixed with water containing salt, which lowers the freezing point of the water."

The second question, as to the meaning of the words in my Paper [JOURNAL, p. 39] "This gives 586 lb. ($5\frac{1}{4}$ cwts.) or 1 cubic yard of concrete in position and rammed."

When concrete is mixed and rammed, the finished product occupies much less space than the various constituents separately do. So much so is this the case that each cubic yard (27 cubic feet) of concrete, rammed and in position, of the mixture referred to in the Paper, requires $35\frac{1}{4}$ cubic feet of aggregate and 586 lb. of cement. These figures are from the result of actual measurements. The meaning of the statement is therefore that 586 lb. of cement are required for each cubic yard of the rammed concrete.

The third question refers to diagram fig. 9B, line E, Marsh's formula. This formula is not elsewhere mentioned in the Paper. It is given in Marsh's *Reinforced Concrete*, page 288, and is as follows :—

$p = c\,(1 + 10\Psi)$

p = stress intensity

c = safe working resistance of the concrete in direct compression

$\Psi = \dfrac{\text{area of reinforcement}}{\text{area of concrete}}$

Mr. Marsh takes as the safe compressive stress in the concrete 400 lb. per square inch. He takes the ratio between the modulus of elasticity of the metal and of the concrete as 10.

MR. CHARLES F. MARSH, Assoc. M.Inst. C.E., author of *Reinforced Concrete*,[*] said :—

My first duty is to thank the Council of your Institute for the honour they have done me in inviting me to join in the discussion on the two papers on Reinforced Concrete read at your last meeting, and I hope that what I have to say may be of some interest.

Both Mr. Dunn and M. Mouchel have treated the subjects they have dealt with in a very thorough manner, and Mr. Dunn's paper is of such a nature as to require very little comment ; there are, however, one or two points on which something may be said. He states that cements with no free lime are manufactured. I think that it is very seldom that such a cement is produced : even with rotary kilns small uncalcined lumps come through, which are commercially impossible to pick out from the rest of the clinker. Some manufacturers pass a small jet of steam through the cement when in the tube mills, which has a similar effect to air slaking, but this practice is by no means general. Mr. Dunn remarks that no formulæ have been devised for columns which take into account the initial stresses due to setting in air. Such formulæ would be very unreliable. These stresses vary considerably according to the humidity during setting, and it is impossible to foresee what the conditions will be during the process of hardening.

M. Considère found that in pieces setting in dry air the *tensile* stress induced in the concrete was about 155 lb. per square inch, while in those setting in water the *compressure* stress induced was about 130 lb. per square inch. The degree of humidity during setting varies considerably, and it would be very unwise to take account of a supposed initial tension when the effect on the piece during the hardening might be neutral, or even somewhat on the compression side, if the air was damp.

It may be interesting to note that the hooped column (B, diagram 9 [p. 37]) has a diameter of spiral winding wire very nearly the same as given by my proposed formula—Mr. Dunn's wire being 0·21 inch, whereas my formula gives 0·19. The breaking load gives a factor of safety of 2·06 for my proposed formula for a steady load. M. Considère considers that for such a material as hooped concrete a factor of safety of 2 under a steady load is quite sufficient. M. Considère's formula gives a breaking load of 265,342 lb., or 80 per cent. of the result obtained.

M. Mouchel's paper is a most excellent treatment of the practical view of reinforced concrete, but it might have been better if he had treated the subject more generally instead of confining himself to the Hennebique system ; but since this system is the one which he represents in this country, it is perhaps hardly surprising that prominence should have been given to it.

The Hennebique system was, I believe, the first to be commercially introduced into England, although I am not sure that the Expanded Metal Company was not first in the field.

For some time past Wayss and Fratag, an offshoot of the firm who exploited the original Monier patents, have been represented in this country by Mr. Werner, of the Armoured Concrete Construction Company. M. Cottançin has also erected several buildings and water tanks in various parts of the country.

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[*] Published by Constable, Lond. 1904.

The Koenen and Klett systems are also represented respectively by Messrs. Roxby and Rudolph, and the Maciachini by Mr. Reynolds.

It is to be hoped that reinforced concrete will soon become a universal building material, and that we shall have the benefit of many other of the excellent systems which are in use on the Continent and in America.

The stirrups which are used in some form in many of the systems are especially useful in tying together the several layers of concrete which for practical reasons must, in most cases, be superimposed one on the other, sometimes after the lapse of a considerable interval of time. Many constructors secure these reinforcements to the longitudinal bars, and thus resist the tendency of the concrete to shear along the horizontal rods, the resistance, of course, depending on the security of the attachment. The bent-up rods, besides being useful for resisting the tensile stress over the supports, also act very efficaciously in resisting the shearing stresses.

With respect to columns Mr. Dunn has shown very clearly the nature of failure. The horizontal bindings used in columns of the usual construction are not close enough together to properly resist the swelling and shearing of the concrete, and there appears to be no doubt that the hooped column introduced by M. Considère is the most efficient form of construction.

I was surprised to hear M. Mouchel refer to M. Considère in a somewhat slighting manner, since M. Considère is certainly one of the greatest authorities on reinforced concrete. M. Mouchel also stated that hooped concrete would not resist flexure. Anyone who studies M. Considère's experiments will see that one of the chief advantages of this form of construction is its resistance to flexure.

It may be of interest to mention that M. Considère's patents are worked in this country by Mr. Werner, of the Armoured Concrete Construction Company.

M. Mouchel has stated that no system of reinforced concrete can compare with that of M. Hennebique in simplicity, and implies that they are all of much more recent date.

The Ransome system is almost identical with the Hennebique, and many others are as simple, among which may be mentioned those of MM. Boussiron and Garric, MM. de Vallerie et Simon, Herren Wayss and Fratag, which are all much on the same lines. Of the recently introduced systems the Cummins and the Kahn are very excellent in the manner in which the shearing and longitudinal reinforcements are in one piece, following in this the lines of the Locher system, which was introduced some years ago.

American architects and engineers have for some time taken to designing reinforced concrete structures themselves, and they place the reinforcement in a scientific and simple manner.

M. Hennebique was certainly one of the first to introduce the reinforced concrete beam, but Ransome in America, Coignet and Cottançin in France, and Möller in Germany introduced it at about the same time, and some doubt has been expressed as to who was really first in the field. M. Coignet was probably the first to point out the benefits that would be gained by the use of iron embedded in concrete.

All honour is due to the pioneers of this material, and M. Hennebique certainly ranks high amongst their number.

As regards the care required in construction the men soon take an intelligent interest in the work, and when supervised by a good foreman trained to this form of construction ordinary labourers are perfectly capable of doing the work. At the same time it is necessary that great care should be exercised in the selection and mixing of the materials forming the concrete, and in the design, erection, and removal of the false work.

As to the formulæ used in designing the ordinary reinforced concrete structures of the present day, with the knowledge of the behaviour of the materials gained up to the present time, there appears to be no doubt that they should be based on the relative elasticities of the two materials. I will not discuss the Hennebique formulæ, which have been championed by M. Mouchel, since anyone who cares to study the subject can form his own opinions. As the knowledge of the properties of reinforced concrete becomes more general, formulæ of this nature will stand or fall on their merits.

A brief description of the behaviour of concrete under pressure will show how essential it is that the relative elasticity of the two materials should be taken into account. When a pressure is first applied to concrete it contracts considerably in relation to the intensity of the stress, and consequently its coefficient of elasticity has a small value. On removal of the load there is a considerable permanent set. On the same load being again applied the shortening is much less, causing the coefficient of elasticity to have a higher value. There is still a permanent set, but not so great as under the previous application. On the same load being applied and removed again and again the shortening becomes less and less under each application, the coefficient of elasticity greater and greater, and the permanent set less and less, until at length there is no permanent set, the shortening being the true elastic deformation, and the true coefficient of elasticity is obtained for that load, being of considerably greater value than when the load was first applied. If a greater pressure is now applied and removed again and again, the concrete behaves in the same manner, but in a less degree.

From this it can be seen that under a first or test load concrete under direct compression behaves very differently from the way it does after the load has been applied several times.

Under a first load the concrete contracts considerably, and consequently the reinforcement, in the shape of longitudinal rods, which contract with it, can take up a large share of the stress, whereas when the concrete has taken its full permanent set it contracts under the load to a very much reduced extent, and the reinforcement can only take up a proportional amount of the stress, since its shortening is greatly reduced.

Of course there will be small inverted cup-like risings in the concrete around the reinforcements, due to their not taking part in the permanent set of the concrete; but it seems probable that this will not affect the resistance to any large amount. This effect is one on which more information would be extremely interesting, but from its internal nature it is very difficult to obtain practical knowledge upon it.

The effect of the permanent set of the concrete is very much the same when beams are considered. Under a first or test load the concrete contracts considerably, the neutral axis is very near or slightly below the centre of the depth, and the reinforcement on the tensile side suffers considerable extension, and consequently offers a proportionately great resistance. On the load being applied and removed several times the concrete takes up its permanent set and contracts only slightly, the neutral axis approaches the compression surface, and the reinforcement in tension is of smaller extent, and consequently cannot offer so great a resistance.

The behaviour of beams under a first loading has been clearly shown by some very interesting experiments carried out during last summer by Professor Talbot at Illinois University and Professor Turneaure at Wisconsin University.

In these experiments the longitudinal deformations were carefully measured, the beams were loaded gradually until rupture took place, but the loads were not removed and reapplied.

The neutral axis was found to be at first very near the centre of the depth, and generally slightly below. As the load was increased it took a position nearer the compression surface, but seldom nearer than 40 per cent. of the depth to the axis of the reinforcement. If the loads had been applied and removed several times it is extremely probable that the neutral axis would have been found to take up a position much nearer the compressive surface.

In Professor Lanza's experiments on reinforced concrete columns, mentioned by Mr. Dunn, the loads were gradually increased to breaking, and were not applied and removed several times; they were consequently experiments under a test or first load. The results when studied show that the reinforcement must have taken up a considerable portion of the stresses, as would be expected, since the concrete could not have taken its permanent set, and consequently would shorten considerably in proportion to the applied load.

Professor Lanza's breaking loads give an average factor of safety to the Hennebique formula of 3·14 for the 8 inch × 8 inch columns, and 4·15 for the 10 inch × 10 inch columns; but if the loads had been applied and removed several times it seems probable that the concrete would have failed under a smaller load, since it would have lost to a great extent its power of contraction.

Formulæ derived by taking into account the respective moduli of elasticity of the two materials are being more and more employed by practical constructors. MM. Boussiron and Garric use the formulæ deduced by M. Christophe. Herren Wayss and Fratag no longer use their old formulæ, which were very much on the same lines as those of M. Hennebique, but have adopted the method introduced by Professor Ritter; MM. de Vallerie et Simon and others use Professor Ritter's formulæ; Herr Sanders uses formulæ of his own; and most of the American constructors employ what may be called rationally scientific methods of calculation.

The comparatively great elongation of reinforced as compared with plain concrete, which has been referred to by M. Mouchel, is due to the presence of the reinforcing metal which distributes the stresses along the concrete, preventing a premature failure at a weak section. When the concrete cracks the reinforcements can carry the stresses across, and so prevent failure.

It is very probable that the concrete at the tensile surface of a beam cracks under comparatively small loads. The experiments recently carried out by Professors Talbot and Turneaure, which have been mentioned previously, show clearly that the concrete cracks under an elongation of about $\frac{1}{10000}$ to $\frac{1}{5000}$. By wetting the surface of the concrete Professor Turneaure was enabled to detect small hair cracks at an early period of his tests.

It is true that M. Considère believes that reinforced concrete will not crack in tension until it has stretched more than $\frac{1\cdot5}{1000}$, and that he found an elongation of $\frac{1\cdot98}{1000}$ in some very carefully conducted experiments. This property has not, however, been found to exist by other experimenters, and until its existence is more definitely proved it would be unwise to regard it as established, especially after the results obtained by Professors Talbot and Turneaure.

M. Mouchel implies that the laboratorial experiments conducted on reinforced concrete are unreliable. Most of the experiments on reinforced concrete during the last few years have been carried out on pieces of practical dimensions, and the age, mixture of concrete, percentage of reinforcement, and other necessary details have been carefully noted. The results of these and similar experiments, if properly interpreted, will, it is hoped, lead to a true understanding of the behaviour of the dual material and, at no very distant date, to the firm establishment of rational formulæ which can be universally employed in designing reinforced concrete structures.

With reference to acceptance tests of floors the load should be applied across the whole width of the floor, and not only over one beam or bay. All the beams in the width aid one another in resisting the bending moments, and a more or less isolated load affects the whole width, and consequently gives a misleading result if the effect on only one beam is considered.

One of the most valuable properties of reinforced concrete construction is its monolithic nature, each part acting with the others in resisting the stresses. This has been well demonstrated by M. Mouchel, who has shown photographs of the coal silos at Lens, and the car-shed at Le Mans after one column was completely shattered.

A further excellent illustration of this property was shown in the destruction of the San Marino Pavilion erected by M. Cottançin for the Paris Exhibition of 1900. This building was constructed entirely of framed reinforced concrete and brick, measured 35 feet by 30 feet, and was about 39 feet high. The upper 24 feet of the height was supported at each corner only.

After a severe fire test the three supports at one corner were broken away one after another, the building only collapsing after all the supports were demolished, leaving the upper portion of the building only supported at three corners.

The pile of reinforced concrete is a most useful application of this material, and has a great future before it. I believe the introduction of these piles is entirely due to M. Hennebique: the advantages gained by their use are too obvious to need further comment.

M. Mouchel's remarks on the effect of sea-water on reinforced concrete are most interesting and comforting, since there has certainly been a doubt as to the preservation of the reinforcement when the piece is exposed to the action of sea-water.

M. Mouchel's excellent demonstration of the several advantageous qualities of this material requires no further enlargement except, perhaps, the pointing out that other systems than that of M. Hennebique also possess the valuable properties he mentions.

I cordially agree with most of what M. Mouchel has said about the institution of by-laws covering reinforced concrete construction, but I must differ with him on the subject of the insertion of methods of calculation. It must be admitted that some by-laws dealing with methods of calculation err too much on the side of safety; for instance, the line D on Mr. Dunn's diagram 9 B is absurdly low; but this result is not due to the nature of the formula, but to the very low value allowed for the working stress on the concrete, *i.e.* $\frac{1}{10}$ of the ultimate strength. With such a material as reinforced concrete I cannot help thinking that it is absolutely necessary to impose some restriction as to the methods of calculation, and I fail to see why it should not be possible to formulate perfectly reasonable conditions, which, if they do not entirely meet the ideals of every constructor, would at any rate give quite sufficient latitude to satisfy the general requirements.

It must be remembered that the constructors are not the people who are responsible to the public for the final behaviour of reinforced concrete structures, and that in most cases after the acceptance tests their responsibility ends. It is therefore essential that those who take the responsibility should reasonably protect themselves.

In conclusion I should like to take this opportunity to mention, with respect to the calculations I have given in my book for shearing, that I have found that all my formulæ for the intensity of shearing stress in beams reduce to the shearing force divided by the breadth and the arm of the couple of resisting forces, and that in the case of a double reinforcement the axis of the metal in compression is so near the centre of action of the compressive resistance of the concrete that for practical purposes the distance between them may be neglected.

Consequently all the formulæ for the intensity of shearing stress reduce to the same, *i.e.* the shearing force divided by the breadth and the distance between the axis of the tensile reinforcement and the centre of action of the compressive resistance of the concrete, or expressed in symbols—

$$k_{\max} = \frac{K}{b(h - \frac{3}{8}u)}$$

And, further, wherever $\dfrac{m\omega(hb)}{I}$ occurs in my formulæ $\dfrac{1}{(h - \frac{3}{8}u)}$ can be substituted.

Mr. HAROLD H. D. ANDERSON said that, as a manufacturer of Portland cement, he had been glad to avail himself of the kind privilege offered him of hearing the two interesting papers on the subject of reinforced concrete, that material being one into which cement largely entered, and to which naturally he had paid some attention during its development. Mr. Dunn in his Paper had alluded to the fact that concrete made of cement, described as "best quality Portland," was liable sometimes to crack. It would not, however, be at all safe to assume that this was due to the quality of the cement. It was equally necessary that the materials forming the aggregate should be of first-class quality, and that great care should be shown in mixing the cement with the aggregate. He did not intend, however, to dwell upon the technical part of Portland cement, especially as he saw present Mr. Bamber, who was a member of the Standardisation Committee, which had just established a new standard specification, and who was also the patentee of the hydratic process which had just been alluded to by Mr. Marsh. The combination of the high tensile strain test of steel with the great crushing resistance of concrete formed the ideal amalgamation, and it was a matter of regret that in this country ferro-concrete had made such slow progress compared with the rapid strides it had made on the Continent and in the United States. This leisurely movement in this country might be put down to two causes: first, to the antediluvian restrictions of the building by-laws; secondly, to the little attention given to this science, as he might call it, by the technical press of the country. He hoped that the two lectures which were delivered a fortnight ago, before, he believed, a record audience in that room, would do something towards stimulating the interest in the new material, and encourage the Trade Press to give more attention to it, and thus avoid the necessity of enthusiasts having to refer to Continental and American papers for the information they might require about the latest developments.

Mr. H. K. G. BAMBER, managing director Associated Portland Cement Manufacturers, said he should like to make a few remarks from the cement manufacturers' point of view. He was one of the previous speaker's colleagues as a director of a cement company—perhaps the largest makers in the country—and he should like to make a few remarks with regard to Mr. Dunn's Paper on the question of the specification and the tests Mr. Dunn himself would propose. Mr. Dunn said it would be advisable and very beneficial to the profession, and to the trade generally, if some sort of standard specification could be adopted. He quite sympathised with Mr. Dunn when he said that architects were in a great difficulty, as no doubt they were, each having, doubtless, his own ideas as to the description of cement he would like, and who, no doubt, framed his specification in accordance with those views. It must be a great disadvantage, especially when architects came to compare their specifications, to find what an immense variation there was between one class and another in the ideas of the profession generally. He should like to say that a Committee, under the auspices of the Institution of Civil Engineers and other kindred institutions, on which were one or two members of this Institute and representatives of the contractors and the cement manufacturers, had been sitting on the matter of a standard specification for Portland cement, and had just completed its deliberations. The Company he represented had three members on that Engineering Standards Committee. He mentioned that fact in consequence of a remark by Mr. Dunn, that the English manufacturer was perhaps not quite up to date; and he wished to point out that in framing the new specification, which was, perhaps, the most stringent that had been introduced up to the present time, the cement trade were the prime movers in working it up to the highest possible standard. That specification, he believed, would be made public within the next week or two, and he hoped architects who contemplated compiling a new specification would await the arrival of that one before they embarked on new editions. If the architect who framed his own specification found it a difficulty, it could be imagined what a difficulty it was to the cement manufacturer who had the whole of these specifications placed upon him. As managing director in charge of works he should welcome the time when architects and engineers should adopt some standard specification, and remove from the cement manufacturer the difficulty in which he was placed in trying to comply with the many divergent specifications sent in to him day by day. As regards fineness of grinding, he would like to point out that of late years the fineness to which cement was ground was very much greater than in the past. The profession, he thought, did not realise what an immense difference the grinding made to the properties of cement. Some few years ago, when 15 per cent. on a 50-mesh sieve was quite the universal fineness of cement (of course some would be ground finer than that), the setting time of cement was somewhat more uniform than at the present time. This extremely fine grinding had the effect of making the cement very much quicker setting, for the reason that a very large portion of the material which formerly constituted the cement, that is to say, the coarser particles which were retained on the coarser sieves, had no cementitious value; whereas now, by the finer grinding, they were brought into use; the avidity with which the cement took up water and the chemical action of setting that took place were greater, and consequently a very much quicker-setting cement was produced than in past times. For that reason methods were adopted to regulate the setting time. The custom in Germany, and largely in England, had been to add small percentages of gypsum, which had the effect of retarding the setting time. Some engineers, however, had a great objection to the addition of such materials, and in order to get over that difficulty, and to regulate the setting time of cement in accordance with the various specifications, that process of hydration which Mr. Marsh had referred to was invented by himself, taken up by his (the speaker's) company, and was now largely employed. By that means they were able to make a cement of the highest quality, and to regulate the setting time in accordance with the specifications, without adding any gypsum at all. The effect also of the hydrating process was partially a chemical one; because those who knew anything of chemistry would realise that if cement was brought into contact with moist atmosphere in the final stage of manufacture the hydration of any small particles of free lime that might exist would take place, and they found by experience that a very much sounder cement was produced when it was treated by this process than was the case by the addition of gypsum. Mr. Marsh had referred to the question of free lime, especially in the case of rotary kilns; and he should like to say a word on that, as he had under his control perhaps the largest installation of rotary kilns in the United Kingdom, and although, as Mr. Marsh said, there did appear to be at times very small particles of half-burn passing with the clinkers, he should like to say that the percentage of half-burn obtained, and unavoidably obtained, by that process, as compared with the amount found in cement manufactured by other processes, was very small indeed—in fact, the percentage could hardly be measured. The clinker produced by that process was of so much greater uniformity of colour than the old process, that a few specks of half-burn were much more visible than they would be in clinker manufactured by older kilns. He did not know whether Mr. Marsh had seen the particular kilns that they (the speaker's Company) had under their control, but there was very little half-burn to be seen there now. The question of the effect of temperature on the setting-time of cement, raised by Mr. Dunn, was a very important one, and should be fully recognised by all engineers, architects, and others having the use of cement under their control.

Mr. B. HANNEN (of Messrs. Wm. Cubitt & Co.) said he had to admit that he knew nothing about the scientific part of the new material. But Mr. Dunn had asked him some years ago to look into the question from the contractor's point of view as regards the cement, as to whether they were getting the best that could be made, and he had done so. He had gone carefully into the matter, and he considered that they had now got a specification which was more stringent than any in England. He was bound to say, however, that the cement manufacturers had so far come up to the standard they had asked them for, that as fast as he made a strict specification the manufacturers got a cement which was better. There were two things they had noticed which he thought would interest them. Mr. Dunn had mentioned one. In the old days it was always thought that in making a concrete floor an allowance had to be made at the edges for the expansion. Owing to the improvement in modern cement the necessity for such an allowance had entirely disappeared. Now when they constructed a ferro-concrete floor they rammed it tight home into the walls on both sides, and in all the ferro-concrete floors they had constructed there had never been the least sign of expansion. That, they considered, was owing to the better manufacture of the cement, which, as a matter of fact, shrank when it was setting in air and did not expand. That fact, perhaps, was not generally known; but, so far as their experience went, it was a fact. The second thing they found was that, owing probably to the extremely fine grinding, the cement deteriorated by being kept any length of time. A recent specification asked them to make six floors for holding the cement, putting it in at the top, and then, by dividing the floor and letting the cement fall through from one floor to another six times, thoroughly to turn over the cement. That operation was performed with the idea of getting rid of the free lime. At the present moment such an operation would absolutely damage the cement, so far as their experience went. They found also that if the cement was kept for any length of time—he was speaking only of very first-class cement—it deteriorated. They had noticed, particularly where they had had to deal with piles, that piles made of cement two months old were not nearly so good as when made of cement ten days old. In the buildings they had carried out they had, of course, made tests of floors and columns, at one of which, at Tottenham, designed by Mr. Arthur Dixon, their Chairman, Mr. Collcutt, had been present. The results from their experience of fireproof floors were extraordinary; the deflection was so slight under the enormous loads they had to carry. Only the other day they tested a 9 by 9 column, in a building designed by Mr. Pearson, putting on it a load of forty-six tons, with the extraordinary result of a deflection in the beams resting on the column of only 3 millimetres. It sank to that, and recovered itself before the entire load was taken off again. One question occurred to him. He could not understand how architects, who were principally interested in this matter, were going to design in this material, or even to check the calculations. The work of designing and making the working drawings and taking out quantities was so heavy and responsible that it seemed absolutely impossible for the architects to get through the work. First there was the question of expense: it would necessitate a large staff of trained engineers to work out the complicated figures, and then there was the time it would take to do it. He did not understand much about the scientific part of the work, but it seemed to him that it must always be in the hands of the specialist; the architect in a general way would be bound to go to him. As regards formulæ, M. Hennebique, he believed, never published any formulæ at all. Others had done so for him, but he had never published any. It was obvious that any formulæ for floors and beams would not get over the difficulties to be found in the general construction. A building was not all floors and beams; exceptional difficulties might suddenly crop up. Special reinforcement might be wanted at certain points, and the ordinary formula did not touch that. It appeared to him that what they all had to do—architects, engineers, and contractors, who had to carry out this work—was to learn experience and to practise patience. With regard to the question of being able to alter these buildings after construction, of course it was not easy; but it was certainly as easy as having to alter a steel beam surrounded with concrete. The concrete must be taken as being the best concrete in each case. Taking both concretes as equal, and that each beam—either the ferro-concrete beam or the steel beam—was surrounded with this excellent concrete, it seemed to him that the alteration of the ferro-concrete construction must be more easy. Their experience showed that it was easier to cut off steel rods than to cut through steel girders. Supposing they wanted to lengthen a ferro-concrete beam, it would easily be done by simply welding over the piece of steel at the end of the rod. He could not see where the difficulty came in, except that in the case of ferro-concrete as a rule they insisted upon the best concrete, whereas in ordinary concrete they did not, and the difficulty was in cutting through the concrete itself. As far as his experience went, it certainly had not been more difficult to make alterations in ferro-concrete than it would be in the ordinary construction.

Mr. A. T. WALMISLEY, M.Inst.C.E. [*H.A.*], said that the proper construction of ferro-concrete in these days was of the highest importance, and they could not be too thankful to the authors of the two Papers who had brought the matter before them. M. Mouchel had given them a very good and complete description of the Hennebique system; and they knew that wherever that system had been used—and it had been used very extensively—it had been successful. But, as Mr. Marsh had pointed out, there were other systems that architects had to deal with, and among them Mr. Marsh had mentioned the expanded metal system. The expanded metal system, he thought, possessed this advantage over the Hennebique system, that the expanded metal could be brought in sheets up to 16 feet in width, and they had simply to lay that down at the proper level Whereas with a concrete floor on the Hennebique system it was of the greatest importance to see that the rods and wires and saddles between them were all properly placed, and this involved a great deal of superintendence and supervision. Though he agreed with previous speakers, that they should not rely too much on formulæ, he thought they would gain some benefit from the consideration of formulæ. It would be a very injudicious thing to place the reinforcement upon a neutral axis of the slab: it should be placed where it would take the tension properly and leave the other part to take the compression; and though they could not rely upon formulæ in their entirety, yet it was useful to avail themselves of experience. If one took a retaining wall or footpath made of concrete it would be found that with pure concrete it would show cracks. He had watched various retaining walls, and had found as a rule that those cracks would average about 11 feet apart; so that if one made a straight joint in the retaining wall at every 11 feet, and introduced reinforcement in the concrete, it would have no cracks at all; and one could have a retaining wall or footpath to a great extent without any cracks. With regard to piles, for which the Hennebique system was largely used, it had been found at Southampton that if one took a rod embedded in good concrete, and then embodied that concrete for a length of eleven diameters of the rod, after it was properly set, the rod could be broken before it would be pulled out of the concrete. That was a useful piece of information derived from experience of which anyone dealing with ferro-concrete would avail himself as he had done. But there was one thing that must be remembered above everything—viz. that in reinforced concrete it was essential to have the best materials. He had no fear of corrosion if sea-sand and sea-water were eliminated; if care were taken to use fresh-water sand and fresh water, and proper precautions were taken and the proper materials used. Iron and concrete would expand and crack about the same as good concrete, and there was no occasion to provide for the one expanding and contracting over the other. He thought that the subject had elicited a very profitable discussion; and no doubt it was simply a prelude to other Papers which must come before the Institute later on when they had had further experience of ferro-concrete.

Mr. ROBINS, a visitor, said he had had a life's experience in concrete work. In 1869 he took out the first patent for armour concrete in the form of a blending of iron and steel. In 1877 he took out a patent for employing it by casting the whole of a house from a model floor wherein he gave the decoration and the reverse form of that decoration, which formed, of course, a different feature in each room. This was before anything was done of that kind in concrete in America. Therefore it was an English invention, and he claimed to be the pioneer of that system. So far as the adhesion of Portland cement to iron or steel was concerned, it was not reliable from his experience, and he had adopted the plan of employing materials to make it more adhesive on which to follow with the Portland cement. When he employed no heat the material he used was Portland cement with about 10 per cent. of whiting and gum dextering. By using that over these materials with grit of any kind or grains of coke or that sort of thing one got a good form of key on which to follow with Portland cement, and no oxidisation of the metal would take place. But where heat is employed he used silicate of soda, and it became vitrified by the heat, and it was a hard matter indeed to chip it off even with the thickness of Portland cement upon it. By this means he thought he had it in the best form for any concrete.

Mr. HILTON NASH [*F.*] said he did not think M. Mouchel had made quite the most of his case. He had not told them the great saving in cost by putting up a building in his construction. Some four years ago a large warehouse was put up partially under his (the speaker's) superintendence, and he was now putting up one in M. Mouchel's material, and he was able to inform his clients that in a building costing £10,000 they would save £1,000 on the construction. He thought that was a very important item. In a warehouse, too, one saved considerably in the ceilings and floors. There was a homogeneous floor of concrete, and when it was finished they had simply to whitewash the underside of the floor and the building was finished. There were drawbacks to the system. Where there was to be machinery, one must know exactly where to place it; one must know where the bolts would be in the floors which were to carry the machinery, because the floor could not be easily cut into after being laid, and it was necessary to plot out all the machinery on the different floors before the building could be started. He had great faith in M. Hennebique's system. There were others no doubt equally good. He was hoping they would have had a discussion more amongst themselves that evening, as he knew there were many architects present who wanted to say something upon the subject. He thought, however, that anybody using this system would find it most satisfactory and economical.

Mr. E. W. HUDSON [*A.*] asked if it would be possible to have a further adjournment of the discussion. The subject was most interesting from the engineer's point of view, but he could not help wondering where the architecture came in.

Mr. T. LEWIS BANKS [*F.*] said he welcomed the subject much more as an architect perhaps than as an engineer. He held that all novelty in architecture arose from one of two causes, either new requirements, which the ancients did not need, or new materials, which the ancients did not use. Latterly, they had had two new materials, first, iron, and now concrete. He could not say that the introduction of iron had improved architecture at all—he rather thought the reverse—and in respect of fire it had introduced a danger which was not present in wood, and the work of protecting iron from flames had been left to fire-proof experts. For the last few years he had given considerable attention to fire-proofing, and his idea with respect to protecting iron was to separate the shield from the metal itself, and not to closely cover it with any material which the expansion of the metal when heated tended to throw off. The object of his rising was to draw attention to a material which the cement manufacturers might not like. He had always held that the best cement was the slowest-setting cement; but unfortunately they lived in a hustling world, and they could not do with slow-setting cement. The strongest cement that he knew, and which he had used for over thirty years, was hematite slag—the pure hematite slag, not from the lower ores that were treated by the basic process (that was no good), but the purest hematite slag. He had brought with him a portion of a brick, and he did not think any cement manufacturer could produce anything as hard as that. He had the greatest difficulty in breaking it. The brick was thirty years old. He had built a house that cost over £30,000 of nothing but that slag; it was used very much in the North of England, especially on the west coast of Cumberland, for building purposes. He had used it as mortar, he had used it as stucco, he had used it for casting blocks and building as if it were stone. It would stand far better than any cement he knew of or any other material; but it had this great drawback, that it set so slowly, and he was afraid that the present age would not have the patience to wait for its setting; in fact, it hardly set in less than a fortnight, and that was of little use in the competition of the present day. But if time would allow of it, there was no cement manufactured on the Medway, or by any cement manufacturer, that was equal to it when it was carefully selected and properly ground as fine as wheaten flour. The first question he wished to ask was what effect fire had upon the rods in the beams and columns. They knew the effect it had upon girders, even when they were protected by concrete or terra-cotta; how the heat eventually reached them and threw off the covering. But there was a very small amount of metal in these reinforced concrete beams and columns. When the beam became practically red-hot, did it affect the strength to any extent? His next question was with regard to the contraction. He had noticed that if he built a wall 100 yards long it would crack at every 13 feet by his measurements, and in those large floors was there any danger of cracking simply by contraction of the cement? He wished to know, too, when did cement cease to contract? He had registered it for twenty years, and found it still contracting. Again, what effect did the weather have upon buildings built in concrete with such thin outside walls?

Mr. S. PERKINS PICK [*F.*] said that the word "slag" compelled him to bring before the Meeting a very lamentable experience in the use of slag as aggregate for mixture in concrete. This was used in a service reservoir of over 100 feet diameter, and when the cement concrete was made (and the cement was of excellent manufacture so far as they knew) the aggregate was formed of slag from iron furnaces, and it appeared to set quite hard, in fact, as hard as any concrete could reasonably be expected to be. But after the reservoir was filled with water their attention was called to serious cracks which began to appear, and upon inspection of the reservoir they found a very horrid smell over the main outlet which received the waste and under-drainage from this reservoir, which a chemist stated to be unmistakably sulphuretted hydrogen. The cracks seriously developed, and they tried first to combat the collapse by putting an enormous iron band round the whole structure. It was a structure vaulted all ways into about twenty-four compartments. The effect was that the whole of the vaulting then sprang upwards and cracked along the lines of least resistance; and when it was uncovered there was a repetition of the sheer over each vault, and cracks along the thinnest lines of each vault. They had to take the top of it off, and in taking it off they found that this concrete, which at the time it was put in set perfectly hard, could be taken into the hands and squeezed through the fingers like so much dough. The chemist informed them that this action was the result of a chemical combination which was caused by the sulphur and the phosphorus in the slag having an affinity for the lime in the cement, water acting as the medium. He could only say that it was a bad experience for them. With regard to ferro-concrete generally he had not had a very great deal of experience; he had only used it for floors and roofs; but his experience even for these purposes was quite the reverse of what had been told them that evening. He found even with some of the well-known firms which had been mentioned that this ferro-concrete expanded. He had had cases under his own supervision where walls had been pushed out one, two, and three inches where iron was the tie in the concrete. With regard to the architectural point of view, personally, as an architect, he rather feared a system like this coming into general use. It appeared to him that the hanging up, as it were, to the clouds of great oriel and bay windows and balconies and overhanging awnings, and the thinness of the construction generally, was altogether destructive of good architecture. These engineering freaks might be interesting to engineers, but as an architect he thought they were going quite on the wrong lines, and he could not think that it would be any good to architecture. He did not refer to those wonderful engineering illustrations they had seen upon the screen, which were, no doubt, very good in themselves; but from an artistic point of view he thought that architecture must suffer if this ferro-concrete came into general use.

Mr. LEWIS SOLOMON [*F.*] wished to know how the walls in the upper part of a building of only from 4½ to 5 inches thick of cement acted in keeping out the heat in hot weather and the cold in frosty weather, and also in keeping out the sound.

The CHAIRMAN, in closing the discussion, said they were all very much obliged to the gentlemen who had come there that evening and given them such an interesting discussion.

Mr. EDGAR A. HAWKINS [*A.*], writing on 6th December, says:—

Had not the hour been so late, I should like to have said, in reply to the speaker who asked "Where does the architect come in?" that the architect should be there all the time.

The difficulties in the architect's way pointed out by Mr. Hannen only suggest the desirability of the intelligent collaboration of the architect and the engineer, which has produced such successful results in France.

The use of a new material, as reinforced concrete is, of course, calls for a readjustment of ideals: and the fact that its possibilities are likely to lead to the greatest eccentricities demands the exercise of the ripest artistic experience.

Cast iron was an unpromising material in the hands of the many, but see what Alfred Stevens did with it. It is devoutly to be wished that some of our most talented architects will, instead of holding aloof, show us capabilities in this new material undreamed of by us of the ordinary rank.

Mr. F. T. READE [*H.A.*], who was present at the discussion, but refrained from speaking owing to the lateness of the hour, has sent the following remarks:—

I regret that circumstances prevented my being present at the reading of the Paper on reinforced concrete at our last meeting; but as I have since read the Papers in the Journal of the Institute, I think I know sufficient of the subject to enable me to take part in the present discussion; and to begin with, I propose to offer a few remarks on the history of what is called in M. Mouchel's paper "M. Hennebique's patent ferro-concrete."

I have not the pleasure of knowing M. Hennebique, but if he claims to be the inventor and patentee of all that he includes in the word "ferro-concrete" he must be rather an old man—I should say, at least, a centenarian.

The use of iron plates or rods in connection with concrete, for the construction of floors—presumably fireproof—is of very old date, nearly a century old. Fairbairn, in his book on *Cast and Wrought Iron applied to Building Purposes*, published in 1854, mentions two systems as then having been in use for some time on the Continent, and more particularly alludes to the système Vaux and système Thuasné as being largely used in France. On referring to the illustrations Fairbairn gives of these, it will be found that M. Hennebique's patent has to a great extent been anticipated.

Also in 1877 Mr. Thaddeus Hyatt published a book, for *private* circulation, on the same subject very freely illustrated, in which he goes one better than the Frenchman, and his descriptions and drawings are identical with M. Hennebique's system, more especially in the construction of concrete beams with flat or round iron tie rods.

I have myself, during the last thirty-five years, many times used a variation of the system, and, with *limitations,* I consider it a very useful one, more particularly in the construction of fire-resisting Mansard roofs having one or two stories above the level of the cornice next the street, where the building regulations do not permit timber to be used; also, it is a common mode of constructing the foundations of very heavily loaded columns and piers, where it is often advisable to use a gridiron of rolled joists or T irons bedded in the concrete foundation blocks, and this is of very common occurrence in America, where the foundations of piers and walls of twenty-story buildings require the most careful construction.

In these instances, and a few others not worth alluding to, I have very often used this combination of iron and steel with concrete, and never suspected that I was infringing anybody's invention or patents; if I have, I beg to offer my apologies to M. Hennebique.

But although I do approve of the use of steel and iron in combination with concrete in the cases I have mentioned, and do thoroughly endorse M. Hennebique's recommendation that all flanges of joists or girders should be cased in concrete, I cannot approve, nor would I in any case use, his mode of construction of columns and girders.

To begin with the columns, we have in the Journal of the Institute of 21st November 1903 a drawing, description, and table of tests of a ferro-concrete column, which I propose to refer to as column A. The description of the manufacture of this column, given on page 48, reads exactly like the making of a birdcage, and the time occupied in its manufacture before test took place seems to me most extraordinary; for, allowing one day for making the birdcage, and another day for ramming in the concrete, about twenty layers of 6 inches each, there are in addition five days in which the column was kept in the mould, and fifty-six days during which it reposed on a bed of wet sawdust, a total of sixty-three days to make one column.

Now, I should like to ask, was this column A, made with the greatest care and given a long rest on its wet sawdust bed, an exceptional one, and treated in this leisurely way with the object of getting extra good results in the test, or is this about the time required to make any column?

The test of this column, made at Kirkaldy's, showed that it failed, and burst about two feet from one end, with a pressure of 79·6 tons, the effective area of the column according to Mr. Dunn being 70 inches, which is within a small fraction of half a square foot; this makes the load *per foot* on the columns $79{\cdot}6 \times 2 = 159\frac{1}{4}$ tons; but to this we have to add $6\frac{3}{4}$ tons of initial stress, due to the concrete shrinking in setting, see page 31 of Mr. Dunn's Paper in Institute Journal of 26th November 1904.

Now, I should like to say a few words on this subject of initial stress. It may occur from various causes, but it is a thing to be most carefully avoided. I will mention one extreme case in my own experience. It was during the building of one of the Farringdon Street Markets, and I had been pressing for the delivery of a large cast-iron base plate for a riveted stanchion, carrying, as near as I can remember, 200 tons. The base plate was about 7 feet diameter and about 18 inches deep, uniform thickness of metal about $2\frac{1}{2}$ inches. I had called at the ironfounders' works, and he promised that base should be delivered next day. This was done some time in the afternoon; it was got down into the basement same day, and early next morning was laid on its concrete bed; soon after I called to inspect it, I found it broken into two halves!

The foreman pitched me a yarn of there having been a thunderstorm in the night, and that it had been struck by lightning. I knew this was nonsense, and at once went off to the ironfounders. They had not heard of the smash, so in course of conversation with the foreman *and* the moulders who made the base I found out that in their hurry to get the base to the trimming shed they had treated the whole area of the base on its lower side, that is, its upper side as it lay in the sand, to many buckets of water to cool it, while the ribs and the top flange still lay in the very hot sand below, the result being that the cooling and shrinking of that 7 feet diameter base produced an enormous initial tensile stress on the upper flange and ribs; and when the base was put on the concrete it was allowed to drop about an inch at one side, there was a protruding pebble in the concrete at that point, and the initial stress and that small shock broke that very heavy casting.

To return to column A, $159\frac{1}{4}$ tons, added to $6\frac{3}{4}$ tons initial stress, gives 166 tons, ultimate breaking stress per foot of area; Mr. Dunn, at page 49 of Journal of 21st November 1903, says "that column began to fail at 130 tons per square foot," and on page 50 suggests that a safe load to put on it should be one-third of this load at which it began to fail. $\frac{130}{3}$ he makes out to be 19 tons, but I make it 43 tons, which would be excessive, and not a safe load. I think he intended to say one-sixth of 130, or 21 tons. He then continues—"19 tons, about the same load as we should use for a 6 inch by 5 inch rolled steel joist, weighing $24\frac{1}{2}$ lbs. per *square* foot (he means foot run), and used as a stanchion 10 feet long."

This stanchion would have a sectional area of $7\frac{1}{2}$ inches, and would be equal to 16 tons, with a factor of safety of 8. This stanchion, with the addition of cap and base plates, would weigh about 3 cwts., and could be made for £9 a ton; cost, say, about 30*s*. It would be very instructive if Mr. Dunn would kindly give the cost of column A, made by Messrs. Cubitt, so that we might know what is the economy of using ferro-concrete columns, if any.

Also, it would be interesting to know why the second column B, tested at Kirkaldy's on 30th June 1904, was made with eight $\frac{1}{2}$ inch steel rods, instead of eight $\frac{1}{4}$ inch steel rods as in column A; the area of steel in B is by this increased four times, but breaking stress is not quite doubled. Was this an experiment?

With regard to the "ferro-concrete" girders, it does not seem possible to criticise their construction, for the only description and test given are on page 52, Journal of 26th November 1904, and the test proved to be no test, for we are *told* that "30 tons were put on the beam, and more *might* have been added, but that the end bearings failed." The photograph on page 47, to which we are referred, shows something that might be a butcher's block or a carpenter's bench, but is most unlike a beam or girder. There is neither scale nor dimensions given, so I don't think much of this so-called test; but where the description further says, "a timber beam or steel beam would not have behaved in the manner just described," I most cordially agree with the writer. I am quite sure that both timber and steel would have been ashamed to be guilty of such conduct. But all this about the girder is no test; it is simply an assertion of something that might have happened, and is no credit to the Paper.

I am glad to say I have had no personal experience of the construction of an entire building in ferro-concrete, but it appears to me that the cost of making the moulds and filling in the concrete *in situ* must be very great; for example, in a building of several floors there must be a mould for every column, not one mould for the lot, and the moulds which form the girders must be sufficiently strong to carry a platform on which men can work, or else a platform must be constructed over the whole area at each floor level. I know some who have had ferro-concrete buildings to supervise, and they tell me that the cost of the moulds and fixing is about one-third of the total cost. I should be glad to have this statement either affirmed or contradicted.

I cannot quite follow the concluding part of M. Mouchel's Paper—where on page 61 he says "If ever there was a *safe* construction, it is the ferro-concrete one; because it will not—in fact, it cannot—lend itself to the malpractices of the jerry builder." It seems to me quite the reverse. I should think it a system he would delight in, for, all the steel work being covered up, how can it be inspected? And unless the mixing of the concrete is done under the supervision of a small army of foremen, how can that be checked; and why, necessarily, does detection of any malpractices follow at once?

As a final question, I should like to ask M. Hennebique if he ever heard of an accident at Santiago, where a building in course of construction collapsed, killing thirty persons and injuring fifty? I rather think ferro-concrete was used in this case; whose, I do not know.

Mr. J. SHEPPARD, of 61, Threadneedle Street, E.C., sends the following notes on the fire-resisting character of reinforced concrete:—

Reinforced or ferro-concrete systems of construction, although especially suitable for use in the erection of fire-resisting buildings, do not supply any new principle for protection against the action of heat; therefore precautions which experience has shown to be necessary to secure fire-resisting qualities in former methods must also be observed when erecting buildings with these newer systems if protection against the action of fire is required.

The precautions referred to are now well known, being chiefly—

1. The use of incombustible materials that do not change to any important extent under the action of fierce heat and sudden cooling by powerful streams of water, and of careful workmanship properly applied.
2. Complete encasement of all constructional metal with a non-conducting fire and water resisting substance, not less than two inches in thickness, secured so as to retain its position under the action both of great heat and streams of water.
3. Limitations of buildings, or their securely separated compartments, to a moderate area and capacity, regulated by the nature of their contents.
4. Protection from fires that may occur outside the fire-resisting building.

It will be a great misfortune if by taking liberties with these new systems of applying materials they become discredited, as is now the case with earlier forms of so-called "fire-proof" structures, which practical firemen have found, when their contents are freely burning, to be the most dangerous and difficult buildings they meet with.

The importance of these precautions was shown in the case of the Fidelity and Guaranty Company's building, No. 111, East German Street, Baltimore, involved in the conflagration of February last. Part of this building, having basement, four stories, and attic, covering a ground area of 1,700 superficial feet, was constructed in ferro-concrete, broken granite being used for the aggregate, with the result that exposed angles of the concrete in piers and beams where subject to considerable heat split off, exposing long lengths of the metal reinforcing rods.

With a continued high temperature which may be the case when the stories of a building filled with combustible goods take fire, the tensile resistance of the metal would be seriously weakened, leading probably to collapse. The action of the concrete under heat also showed that better results would be obtained by rounding off all external angles in place of finishing them with a sharp arris.

In March last a fire test was made in London of a box formed ten weeks previously in ferro-concrete by Messrs. Cubitt to instructions furnished by M. Mouchel. The box alone enclosed about 5 cubic yards, two of the sides were 4 inches and two 6 inches thick. There was no floor to the box, the sides of which rested on brick walls 3 feet high; the top or ceiling of the box was 4 inches thick, with a beam projecting 6 inches below the underside and 4 inches wide. This arrangement gave a space of about 9 cubic yards: this space was nearly filled with wood and shavings, which were set on fire. Vent-holes were provided in the upper part of one side of the box. The concrete used was composed of screened Thames gravel varying in size from $\frac{1}{8}$ inch to $\frac{3}{4}$ inch, sharp sand, and best Portland cement very finely ground. The top of the box was loaded equal to 3 cwts. per foot super.

A fire was maintained inside the box for forty-five minutes; the maximum temperature to which the concrete was subjected was probably not more than 1,200° F.

In about twenty minutes after the fire was started cracks appeared on the outer face of the concrete on all sides and also on the top; in some parts these cracks were $\frac{1}{4}$ inch wide.

On the box being cooled by streams of water an examination was made of the inside, portions of which had been finished with a coat of cement plastering. Most of this had flaked off, the face of the concrete being spotted in places by the splitting of pebbles or flints composing the aggregate. Slight air-cracks corresponding with the wider cracks on the outside could be seen; but generally the inner face of the concrete was less affected than the outside, with the exception of the splitting of pebbles and flints referred to.

The reinforcing rods varied from $\frac{5}{16}$ inch to $\frac{3}{4}$ inch diameter, with stirrups of $\frac{7}{8}$-inch hoop iron of 19 B.W.G.

The thickness of concrete from its surface to the metal rods varied from $\frac{3}{4}$ inch to 1 inch. The heat could not be continued for a sufficient time to subject the rods to a reliable test.

It has been suggested that the cracks may have been caused by settlement of the brickwork; but in such case the cracks would have passed through the concrete, and not be chiefly restricted to its outer face.

In August 1903 a fire test (British Fire Prevention Committee No. 78) was made of a floor formed with reinforced trussed hollow concrete beams placed side by side. $\frac{5}{16}$-inch iron reinforcing rods were embedded in the concrete, which was composed of sand and Portland cement 3 to 1; the thickness of concrete from its surface to the metal rods was about $\frac{3}{4}$ inch. The floor was loaded equal to 224 lb. per foot.

When the temperature had reached 1,940 ° Fahr, to which it had been raised from 64° in 105 minutes, five out of the fifteen beams included in the test collapsed.

In December 1903 portions of the floors of an extensive building carefully constructed on the ferro-concrete system at Trenton, New Jersey, collapsed when being tested on completion by representatives of the Baltimore Ferro-concrete Company. Some remarks from M. Mouchel on this failure would be of great interest.

REVIEWS.

AMIENS CATHEDRAL.

Mémoires de la Société des Antiquaires de Picardie. Monographie de l'Église Notre-Dame, Cathédrale d'Amiens. Par Georges Durand. Tome I. Histoire et Description de l'Édifice. [*Amiens and Paris*, 1901. *A. Picard et fils*, 82 *Rue Bonaparte.*]

It has been truly said that the knowledge of Gothic architecture is still in its youth, and perhaps the study and analysis of individual buildings or groups of buildings is what is now most needed to make that knowledge more complete. During the last ten years our neighbours across the Channel have published works which are most valuable contributions in this direction. Some of these are careful studies of the buildings of the Romanesque and Transition periods of particular districts, such as M. Eugène Lefèvre-Pontalis's sumptuous work on the churches of the Soissonnais (1894–7); M. Camille Enlart's on the churches of Picardy (1895); MM. Thiollier's on the Romanesque churches of the diocese of Le Puy (1900); and M. de Rochemonteix's on those of Upper Auvergne (1902). To these M. Georges Durand has added the first volume of a magnificent monograph on Amiens Cathedral. It is worthy of note that all these writers have been pupils of the *École des Chartes*, and all acknowledge their indebtedness to the teaching of M. le Comte de Lasteyrie, whose fine work, *Études sur la sculpture française au moyen age*, has recently been presented by him to our Library. The great value of such studies as these gives cause for regret that we have in England no institution doing such work as the *Ecole des Chartes.*

M. Durand's work * deserves the highest praise, both for the care and accuracy which characterise the historical portion of the book, and for the clearness and scientific method of his analysis of the architecture. The first volume comprises 532 pages of text, of which nearly 200 are devoted to the history, and the remainder to the description of the building. It is illustrated by 48 full-page plates, most of them heliogravures by Dujardin, and by many illustrations in the text. The geometrical drawings are very clearly executed, though one may be permitted a word of regret that M. Durand did not give us a plan to a larger scale. It would, however, be mere presumption to attempt a criticism of the work of one who has devoted years to the study of one building, and this notice may more usefully be confined to a general summary of his conclusions.

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* The second volume has been published since this notice was written.

Amiens Cathedral was described in the fifteenth century as sumptuous and celebrated among all the cathedrals of the realm of France, and modern critics have generally agreed that it marks the culminating point of Gothic architecture. Whatever may be one's preference for individual buildings, it can scarcely be denied that the nave of Amiens displays, in a higher degree than any other building, the perfect expression of the logic of Gothic construction. And, if we add that the monograph is worthy of its subject, we can scarcely give it higher praise.

The history of the building is not complicated by any difficult questions of archæology, for practically nothing is known of the churches which preceded the present structure. What there is to tell is told by M. Durand in his opening chapter, with the abundant references and quotations from documents which mark all the historical portion of his work. In his description he rightly rejects the exasperating method beloved of the writers of cathedral handbooks, that of describing first the exterior and then the interior; he begins, as everyone should, with the plan, and describes the building as "an organic body." His system of reference to the plans, borrowed from maps, by lettering the piers transversely and numbering them longitudinally, is well worth general imitation, for it makes it possible to locate any position on the plan without elaborate description.

The cathedral which preceded the present structure was destroyed by fire, probably in 1218. At this time, almost all the neighbouring cities—Paris, Arras, Noyon, Laon, Senlis, &c.—had rebuilt vast and magnificent cathedrals, and now Amiens set to work to surpass them all. The inscription on a brass plate formerly in the centre of the labyrinth in the pavement of the nave, gives the date of the commencement of the works as 1220, and names three masters of the works. The first was Robert de Luzarches, who was succeeded by Thomas de Cormont, and he by his son Renaud, who was living in 1288, the date of the inscription.

The bishop, Evrard de Fouilloy, who presided over the see when the works were commenced, died in 1222, and it has been stated, without any evidence whatever, that Robert de Luzarches died about the same time or soon after, and that the two Cormonts were masters of the works under the next bishop, Geoffrey d'Eu. Viollet-le-Duc goes so far as to assign to each of the three certain definite parts of the building. M. Durand shows that there is absolutely no authority for such an idea, and that nothing is known of the dates of the three masters beyond the fact that Renaud de Cormont was master in 1288. If it is necessary to distinguish three stages in the works, M. Durand would prefer to find the first in the nave and lower parts of the transept, the second in the lower parts of the chevet up to the aisle vaults, and the third in the upper parts of the choir and chevet, though he refrains from any attempt to separate the work of the three masters.

The reconstruction was commenced with the nave. It has been suggested that the reason for this departure from the more usual method of commencing at the east was that the choir was not so far injured by the fire that it could not be used while the nave was being built. M. Durand shows, however, that the real reason was a desire to retain the church of St. Firmin the Confessor in use until the first part of the cathedral was ready for worship. A charter of Bishop Geoffrey d'Eu of 1236 ratifies what had been decided under his predecessor with regard to the demolition of the church of St. Firmin (which was probably on the site of the present north transept), and provides that, until the church could be rebuilt, the parishioners should be accommodated in one of the aisles of the cathedral. M. Durand concludes that part of the new cathedral was used for worship at latest by 1236, the year in which Bishop Geoffrey died, and he thinks that the whole of the nave, and the west front up to the cornice over the great rose, were completed by that time. As to the extent eastward of the work then finished, he points out that the sculptured string at the base of the triforium which was carved *after* being fixed, all by one hand, extends around the nave and transept up to the eastern piers of the crossing, whilst in the choir the corresponding string is of quite different design, and carved *before* being fixed. In the transept the bays on the west side next the crossing up to the clerestory go with the nave, while the corresponding parts on the east side and the high vaults of the transepts go with the choir. The condition of the building in 1236 was thus something like the present condition of St. Wulfran, Abbeville. The nave would appear to have been closed by a temporary wall in line with the western arcades of the transept; and a vestry behind the altar, which is mentioned in 1239, was probably in the unfinished transept.

M. Durand dissents entirely from Viollet-le-Duc's theory* that the façade was added to the work behind it—a theory which, indeed, presents serious constructional difficulties. He suggests a central date of 1225 for the great portal and its statuary, which he believes has nothing improbable about it, seeing that the great portal of Notre-Dame, Paris, was finished in 1208. Any errors of

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* *Dictionnaire*, ii. 326.

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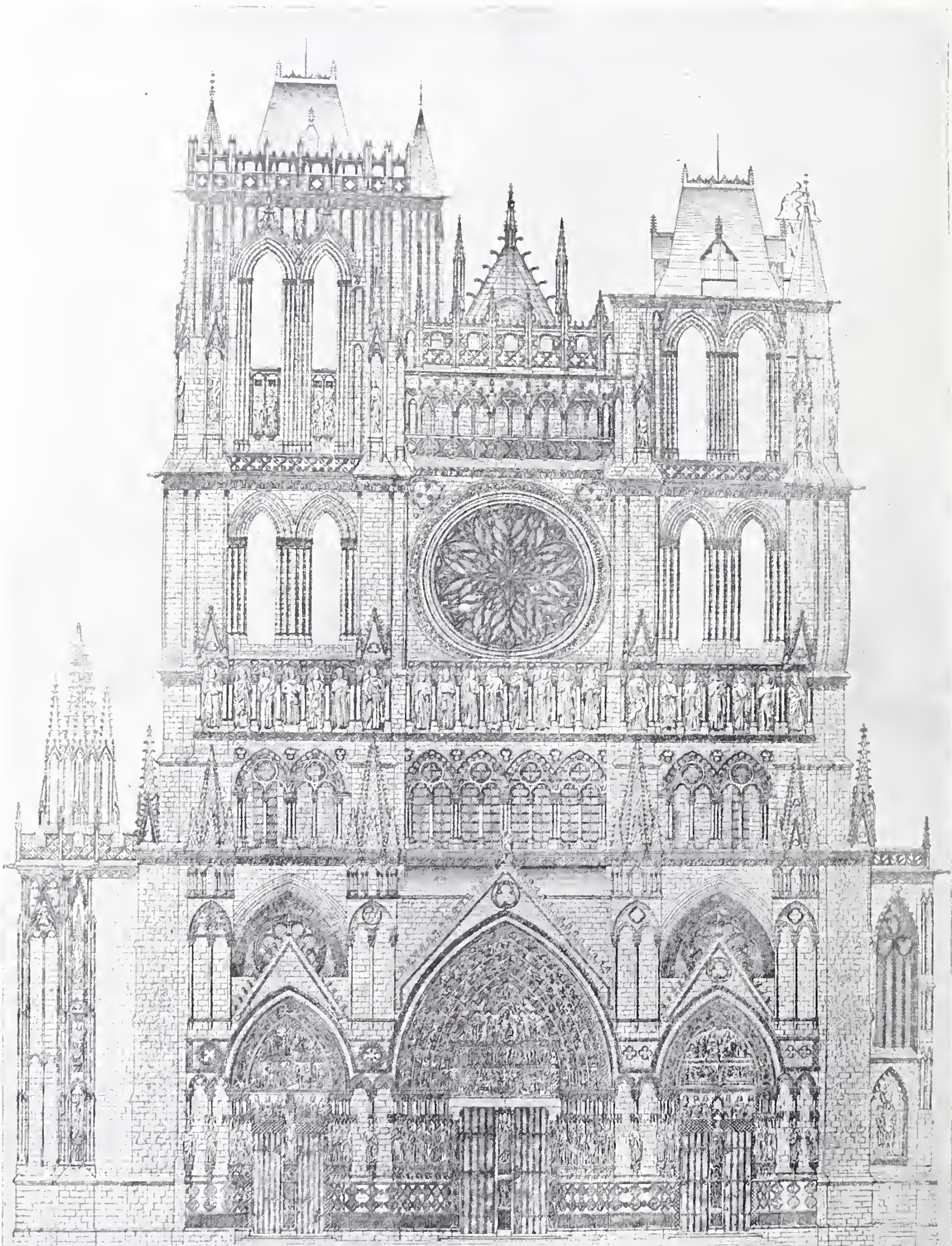

CATHEDRAL OF AMIENS WESTERN FAÇADE

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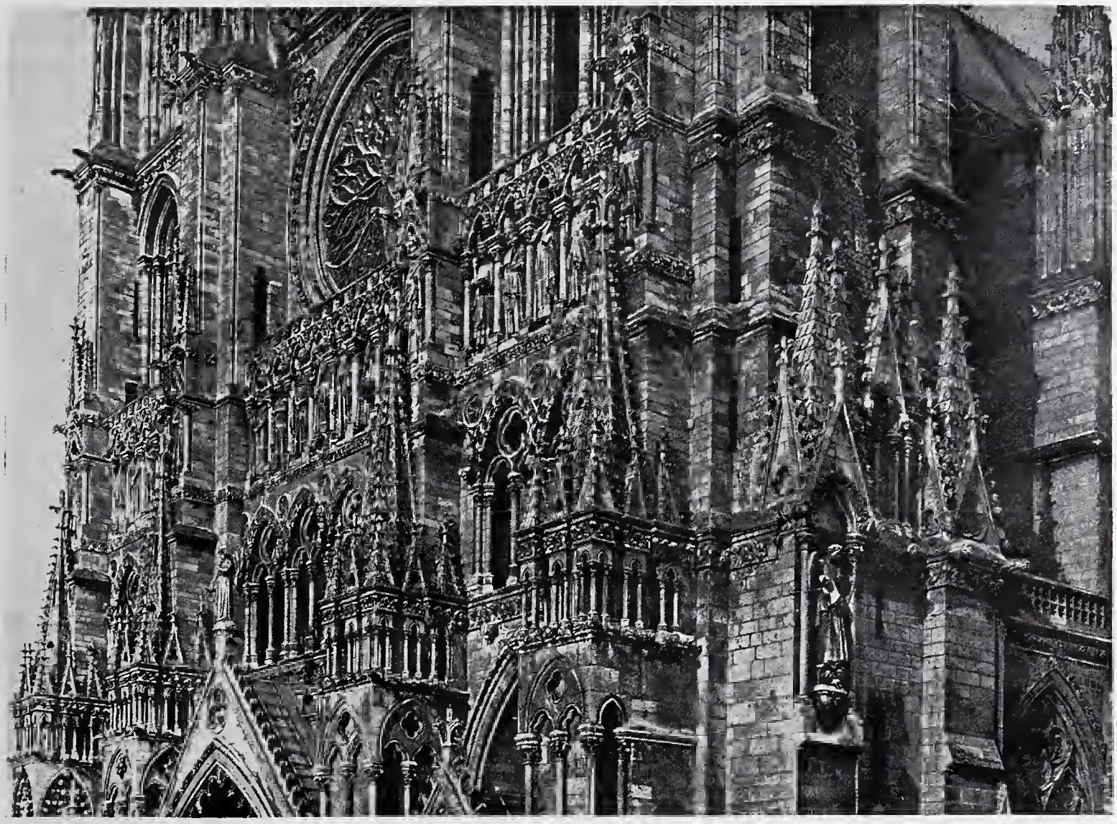
theory with which Viollet-le-Duc can be charged are, however, of trifling importance compared with the astonishing liberties which he took in his so-called "restoration" of this façade. To understand these, the elevation, as shown in a drawing of 1845 by Wiganowski, should be compared with the photograph of the façade in its present condition.* In rebuilding the pinnacles of the four buttresses of the portal, Viollet-le-Duc increased the height of the pyramids, and furnished them with enormous finials, which obstruct the statues in the niches above. In this *galerie des rois* the arcade was entirely renewed by Viollet-le-Duc, after a design of his own, which differs materially from the original work. The latter showed a series of pointed arches, trefoiled, each under a little gable mould, with trefoils in the spandrils above. In the place of these, Viollet-le-Duc substituted trifoliated arches loaded with thick foliage, suppressing the little gables altogether. The double arcade between the towers, above the great rose, which probably dated from the end of the fourteenth century, was reconstructed by Viollet-le-Duc, according to a design of his own, which was nothing like the original.



CATHEDRAL OF AMIENS: DETAIL OF WESTERN FAÇADE.

It is impossible here to speak at length of M. Durand's masterly study of the wonderful sculpture of the façade—a study which must be of great value to all students of mediæval iconography. He tells us that, with few exceptions, all the sculpture and imagery has been executed *before* being fixed. With regard to the *galerie des rois*, he returns to the old idea that the statues here, as well as those in a similar position at Paris, Chartres, and Reims, represent the kings of France, and he combats the theory of Didron, and other writers, who have held that they represent the kings of Judah, and are, in fact, another form of the tree of Jesse. M. Durand, however, has not convinced M. Mâle, who sustains the latter theory in the new edition of his fine work.*

It is probable that the erection of the choir was undertaken very shortly after 1236. This second

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* These illustrations are here reproduced by the kind permission of M. Durand and of the *Société des Antiquaires de Picardie*.

* *L'art religieux du xiii^e^ siècle en France*, by Emile Mâle, p. 200. Paris, 1902.

NORTHERN ARCHITECTURAL ASSOCIATION

stage of the works included the whole ground storey of the choir and its ambulatory and chapels. Bishop Arnould, who died in 1247, was buried between the two eastern piers of the apse, and by this time the works must have been well advanced. The design is of very similar character to, but slightly less advanced than, that of the Sainte Chapelle, Paris, which was commenced in 1245. The progress of the work was interrupted during the ten years following the death of Arnould, and in 1258 a fire occurred, which, however, does not seem to have reached the nave. The upper parts of the transept and choir were recommenced soon after this fire, and the date of the practical completion of the building is marked by the glazing of the central clerestory window of the apse in 1269. The greater part of the glazing was, however, only executed towards the end of the thirteenth century. Artistically, these second and third stages of the work are inferior to the nave, and they were executed with less care. As a natural result, important and costly repairs became necessary during the fifteenth and early part of the sixteenth centuries, and the detailed account of these repairs is of great interest to the architect, as illustrating the peculiar dangers to which these constructional *tours de force* were liable.

The second period in the history of the building extends over more than a century. One of the first works consisted in the addition of chapels between the buttresses of the aisles of the nave. The three easternmost chapels on each side were added towards the end of the thirteenth century, the first (the easternmost on the south side) dating from before 1292. Then in the early years of the fourteenth century follows the fourth chapel on each side, in the vaults of which liernes and tiercerons appear for the first time. After a considerable interval the two westernmost chapels on the south side were added, while the two westernmost on the north were only built about 1375. The gable end of the south transept, except the flamboyant tracery of its rose, dates from the beginning of the fourteenth century, or even the end of the thirteenth, and the gable of the north transept followed in the first quarter of the fourteenth century. The upper parts of the western towers were commenced about 1366, the south tower being finished about 1372, and the north only about 1401 or 1402. Thus at the beginning of the fifteenth century the cathedral was finished as it has come down to us.

It is pleasing to note that the Académie des Inscriptions et Belles-Lettres has this year awarded the Prix Fould (for the best work on the history of the "arts du dessin") to M. Durand for his excellent monograph.

John Bilson.

ALLIED SOCIETIES.

NORTHERN ARCHITECTURAL ASSOCIATION.

The President's Address.

At the opening meeting of the Forty-fifth Session of the Northern Architectural Association, held on 22nd November, the following address was delivered by Mr. J. Walton Taylor [*F.*], President:

Mr. Vice-President and Gentlemen,—So much has been said upon the artistic training and education of architects that it is not my intention to dwell upon the subject at any length this evening, but to depart somewhat from the beaten track, and I therefore claim your indulgence whilst I refer to some matters of professional practice which are not so frequently mentioned in addresses of this kind.

New Premises: Mr. Glover's Benefactions.

It will be within the recollection of most of my hearers, when I had the honour of addressing the members of this Association a year ago, that reference was made to the liberality of our esteemed friend Mr. William Glover [*F.*], now residing at Bromley, S.E., a past President, in generously presenting the Association with the substantial gift of £500 of Consols towards a Building Fund. It will also be remembered a wish was then expressed that we might soon be housed in a building of our own. Happily we expect that wish will soon be an accomplished fact.

After many inquiries, and the inspection of various premises which were in the property market, the Building Committee were fortunate in obtaining the offer of suitable premises at No. 6, Higham Place, Newcastle, situated immediately opposite the "Laing Art Gallery," which they recommended the Council to purchase for the Association rooms. Mr. Glover and the Council confirmed their report, and negotiations have been entered into for securing the property. Some structural alterations and decorative work will be necessary after we get possession at the beginning of next year, and it is hoped that we may be able to hold our next Annual Meeting in the new premises.

Now that we have obtained suitable premises of our own, which will shortly become the home of the Northern Architectural Association, I suggest that we show our appreciation of the kindness and forethought of the gentleman whose generosity has made this scheme possible in a way that will, I am sure, be agreeable to you all, and that is to name the premises "The Glover Institute." This, I think, would be a fitting tribute to one who has always manifested such a great interest in our Association, and be a lasting reminder of the many years he spent amongst us.

It may not be generally known that negotiations have been entered into between the Corporation and the owners of the property at the north end of

Higham Place for the continuation of that street into Ellison Place. This proposal, when carried out, will add very much to the convenience of members living at that end of the city, and will increase the value of our premises.

It is intended to utilise the whole of the first floor for the use of the Association; the large room at the front to be a meeting room for lectures, the one at the back for a library and committee-room, and to be so arranged by means of movable partitions that the two rooms can be made into one when required for large gatherings. It is hoped that in course of time a museum may be formed, and possibly a suite of club rooms set aside for students; but in the meantime the rooms not required will be let off to bring in a revenue, with the exception of those allotted to the caretaker.

The principal object for which this Institute has been formed is for the better training and equipment of architectural students in our noble profession; and although we have every reason to believe this good object will be attained, yet we must not forget that its future development and ultimate success will greatly depend upon the way it is supported by each member of this Association.

A few weeks ago I had an interview with Mr. Glover in London, and it affords me much pleasure to state that he has placed us under another debt of obligation to him by still further generous gifts. These are as follows:—

In addition to the £500 of Consols already mentioned, he will give a further sum of £500 towards the Building Fund of our Institute so as to place it on a sound financial basis.

He will also give a donation to the "Architects' Benevolent Fund," with the proviso that nominations made by the Northern Architectural Association are to have a prior claim so far as the interest on the funds is available.

In the event of the Royal Institute of British Architects consenting to hold their Annual Dinner in Newcastle Mr. Glover promised to present a sum of money to the R.I.B.A. scheme for the higher education of architects on the same conditions as stipulated for the "Architects' Benevolent Fund." It is true that owing to unforeseen circumstances the R.I.B.A. meeting was not held here this year, but seeing that the Council of the Institute arranged to come, Mr. Glover is satisfied that the conditions he laid down have been complied with, and he therefore intends to carry out his promise of a donation for this object.

In the course of my interview with Mr. Glover he told me that the three guiding principles which have influenced him through life have been—

(1) To spend my money where I made it.

(2) There are always those in our midst poorer than ourselves, and I have therefore always reserved a portion of my income to benefit my poorer brethren.

(3) Every man should endeavour to leave the world better than he found it.

These principles have been very practically exemplified by the ready and hearty manner in which he has assisted in providing a home for the N.A.A., the higher education of architects, and last, but not least, in holding out a helping hand to those who have not been so fortunate in acquiring the same measure of this world's goods as himself.

The R.I.B.A. Proposed Visit to Newcastle.

Early in the spring of this year an invitation was given by our Council to the Royal Institute Council to hold the Annual Dinner in Newcastle instead of London. This was very cordially accepted, the date fixed being the first week in October. Arrangements were made for a civic reception to be followed by a meeting. After the visitors had been entertained to luncheon it was proposed to arrange a series of excursions to places of interest in the neighbourhood, the whole to conclude with the Annual Dinner in the evening.

As the time drew near the response from the London and South-country members to the circulars sent out was not sufficient to warrant the R.I.B.A. Council in proceeding with the matter; whilst, in addition to this, there had already been so many visits of late to Newcastle by literary and scientific societies, who had been hospitably entertained by the Mayor and members of the Corporation, that it was thought advisable to postpone the visit for this year, seeing there was a great danger of the gathering suffering in consequence. When the subject was brought before our Council they quite concurred in this view, on the understanding that the project was not abandoned, but only deferred.

Sir Aston Webb, R.A.

When the King's Birthday Honours were announced on November 9 we must all have been delighted to see the name of the past President of the Institute amongst the list of the new Knights. On behalf of the Council and members of this Association the Hon. Secretary and I at once wrote and wired Sir Aston Webb our heartiest congratulations upon the honour conferred upon him by His Majesty King Edward VII., which he suitably acknowledged as follows:—"Please to accept my most sincere thanks for the kind congratulations of the Council of the Northern Architectural Association and yourself, which I greatly appreciate."

In the past our profession has too often been overlooked when honours were being dispensed. It is therefore a matter for much gratification that on this occasion true genius has been recognised, for it is not only owing to his skill as an architect that we appreciate and honour Sir Aston Webb, but also because of his modesty, his geniality, and his worth as a man.

Registration of Architects.

At the beginning of the year a very representative and influential Committee was appointed to consider this very important subject and report to the general body of members. It consisted of the whole Council of 38, together with 12 additional representatives of the Allied Societies, there thus being 25 London members and 25 provincial members. The first meeting of this Committee was held at the Royal Institute Rooms on 28th March last, Mr. (now Sir) Aston Webb, R.A., President, in the chair. There was a good attendance of members, the N.A.A. being represented by Mr. J. T. Cackett Vice-President, and myself, and a very interesting discussion took place. The London members for the most part were against registration, whilst most of those from the provinces, and especially the representatives of the Emerald Isle, were as strongly in favour. The outcome of the meeting was the appointment of a sub-committee to go fully into the matter and bring up a report to a future meeting.

No further conference was held until 19th October. In the meantime the election of the new R.I.B.A. Council had taken place, and, the *personnel* having so entirely changed, it was found necessary to reconsider the whole subject and elect a fresh sub-committee. In the absence of the new President (Mr. John Belcher, A.R.A.), Mr. Henry T. Hare took the chair. Again there was a very free expression of opinion, the general impression being that, although the time was not opportune for compulsory registration, yet some method of statutory qualification of architects was very desirable; and it was left for the new sub-committee to draw up a "scheme" for the compulsory training, education, and statutory qualification of architects, this to be submitted to the General Committee with a view to discussion.

The constitution of this sub-committee consists of seven London members and seven from the provinces, amongst the latter are representatives from Glasgow, Belfast, Manchester, Leeds, Nottingham, and Leicester.

Consulting Architects.

So many difficult problems present themselves in actual practice—some of a very complex nature, requiring special knowledge and experience—that an opinion has been expressed by several members of our Association that it would be desirable for those who possess such special knowledge to intimate their willingness to undertake the duties of consulting architect, very much in the same way as obtains in the legal and medical professions and amongst engineers.

Several of the most experienced members of the N.A.A. very generously place their services at the disposal of the younger members of the profession who may require expert opinion. This, however, is not done professionally, but because of their goodness of heart, no charge being made for such advice. It is therefore very likely that many who would otherwise take advantage of their brethren's wider experience hesitate to do so owing to a feeling of indebtedness, whereas if it became the general practice for architects to give consultations professionally this feeling of delicacy would disappear.

During recent years questions of light and air have been dealt with to a great extent by architects and surveyors who have made a special study of this subject, and their services are much in demand as expert witnesses; but there are many other subjects, such as questions of good planning and design, professional practice, &c., upon which most of us at some time or other would be very glad to have the unbiassed opinion of a brother architect, and for which we and our clients would gladly pay a fee. I am not clear whether this course is adopted in London or any of the large provincial centres, but I think it would be well if we could ventilate the subject at our Association meetings during the coming session.

Provisional Sums.

There is another vexed question in dealing with building contracts, viz. the varying custom amongst architects with regard to the P.C. sums included in the contract for fittings or special items; whether these should be dealt with by the architect and paid by the owner direct, or be charged to the builder's account.

Sub-contractors.

Another subject we ought to seriously consider is the safeguarding of sub-contractors against the non-payment of moneys due to them from the principal contractor. It is sometimes alleged that the latter withholds payment of sums which have been included in the architect's certificate on account of work executed. In case of the failure of the principal contractor, the sub-contractor therefore runs a great risk of losing his money unless he takes the precaution of having it guaranteed.

It is the custom in some districts to let each trade separately, and although this obviates the difficulty I have just mentioned, yet it involves a great deal of extra supervision, and often prevents the unity of purpose which is so necessary if a building has to be completed by a specified date.

If an opportunity presents itself, I should like to see an evening devoted to the consideration of these and other matters of professional practice by the members of this Association.

Depression in the Building Trade.

I regret that the forecast which I ventured to make a year ago with regard to the outlook has been more than verified. Many of the large contracts are fast approaching completion, and, so far as we can see, there are not many indications of the general activity in the building world which we experienced three or four years ago. This is not confined to one particular district, for unhappily the wave of depression seems to be even worse in the South and Midlands than in the northern provinces.

Winter Session.

May I remind you of the excellent syllabus of lectures and meetings arranged for the Winter Session? I trust these will be loyally supported by members and students alike, and that they may not only be highly instructive, but tend to draw us into closer fellowship with each other, which is one of the chief aims and objects of our Association. That this may be so is my earnest wish.

THE LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

Byzantine Architecture.

At the rooms of the above Society on Thursday, the 1st inst., Mr. Alexander McGibbon [*A.*], of Glasgow, read a paper on Byzantine architecture. The lecturer's justification for this subject was found in the current popularity of the style, notably, in the new Westminster Cathedral and some of the paper designs for the Liverpool Cathedral, and a large number of students' competitions; and as a suggested counteraction to "L'Art Nouveau," whose vogue can only be explained as a protest against the restraints of orthodox architecture, and designing architecture in "styles" as commonly understood, was defended by the lecturer.

Byzantine architecture was described as Romanesque modified in its principal features, and it has been styled as mediæval Greek. Whatever the first intention in effect, the style was one of interiors principally; for, as with many of the Italian Romanesque churches, the exteriors were bald, but the idea seems to have been marble veneer. Rustication was not employed, but the traditional Romanesque use of tiles brought about the first appearance of polychromatic architecture.

The constructive methods were ingenious, but not, perhaps, for modern builders very instructive. An interesting point is that truth in architecture was much more in evidence then than with Gothic or Renaissance builders, for semi-circular vaults were not sheltered under a wooden roof, and there was no false dome. When height was wanted, the later usage was to elevate the dome on a drum; but still the form that was seen internally was that of the exterior. The absence of mouldings is noticeable, but suggestive to present-day designers. Of their mosaics little need be said, and they were of glass rather than marble or encaustic tesseræ. The carving in capitals is very characteristic, largely influenced by drill work, and the decorative effect realised in flat surface effect was more like painting or inlay than carving of the bossy sort we are accustomed to. The ornament was taken from metal work, but the transference to another material was not allowed to influence the form.

A selection of lantern slides, illustrating the various points of the lecture, was shown on the screen.

A vote of thanks to the lecturer was proposed by Mr. R. P. Oglesby and seconded by Mr. S. D. Kitson.

G. Ernest Reason.

Market Hall, Leeds.

Royal Societies Club, St. James's Street, S.W.
7th December 1904.

To the Editor Journal R.I.B.A.

Dear Sir,—Messrs. Leeming & Leeming take exception to remarks in my address as being calculated to injure their reputation. I thought I had guarded against this by saying "I had the pleasure to send them a telegram congratulating them on the successful completion of their work." I should like, through the medium of the Journal, to say that I endorse the terms of that telegram, and explain that my criticism was directed against the promoters of an extravagant scheme and not against the architects, who are in no way responsible for it. I may say that the design and execution of the work meet with general approval.

Yours faithfully,
G. B. Bulmer.

REPORT OF THE COMMITTEE ON MUNICIPAL OFFICIALS AND ARCHITECTURAL WORK.

THE Council at their meeting of the 4th January 1904, having had their attention directed to the growing practice of County and Municipal Authorities entrusting architectural work to their paid officials, Resolved :—

" That a Committee be appointed to enquire into the whole question and devise steps that may be taken to bring about a reform, and report to Council; and that this Committee do consist of Messrs. J. J. Burnet, H. T. Hare, E. W. Mountford, W. H. Seth-Smith, John W. Simpson, and all the Presidents of Allied Societies."

The Committee have now concluded their enquiry, and beg leave to report as follows :—

As a first step, a series of questions covering as far as possible the scope of the enquiry was prepared, and copies were sent to all the members of the Committee and to various representative architects practising in the provinces. The answers, which the Committee have regarded as confidential, supplied them with most valuable information. The consideration and co-ordination of these have formed the main part of the Committee's work.

The questions are here set forth, and the replies attached represent the general consensus of the opinions expressed and the digest of the information supplied by the Committee's correspondents.

Q. 1. Can you give any instances where architectural works executed by an Official Engineer or Surveyor have proved unsatisfactory? If so, in what respects have they failed ?

A. Numerous instances have been given where they have proved unsatisfactory both in point of defective design and excessive cost.

Q. 2. Is, in your opinion, the establishment of an Official Architect's Department for local public works advantageous to the ratepayers, whether artistically or financially ?

A. From an artistic point of view it would not be advantageous; but financially much may be said in favour of the establishment of such a department.

Q. 3. Assuming that an Architect's Department is required by a Corporation or other Authority, would you suggest that its work should be in any way restricted; either, to buildings of a certain class (*e.g.* those of utilitarian importance only), to those below a given limit of cost, or otherwise ?

A. The work entrusted to the Architect's Department should be restricted to utilitarian buildings under a certain limit of cost.

Q. 4. Please state the principal towns included in your Society's province—(*a*) where the official building work is done by a Department under a properly qualified Architect; (*b*) where such work is included in the duties of the Engineer's or Surveyor's Department.

A. The only towns in the United Kingdom where there is a " City Architect" are: Bradford, Hull, Nottingham, Dublin, Dundee, Aberdeen, and Leith.

Q. 5. Have any representations been made to your Society by members dissatisfied with the action of their Local Authorities in carrying out buildings under their own Officials ?

A. In many instances representations have been made to the Allied Societies by members. Representations have also been made to the Council of the Royal Institute.

Q. 6. Can you furnish the Committee with any information as to the practice of American and Continental authorities in dealing with local public works; and will you favour them with your views generally upon the subject ?

A. See letters from foreign correspondents in Appendix to this Report.

Q. 7. What means do you suggest for giving effect to such recommendations as this Committee may make to the Council ?

A. (1) *Memoriatising County and Municipal Authorities, possibly also the Local Government Board, and Parliament, the memorial to be supported by all the Allied Societies.* (2) *Public opinion to be directed to the question through the Press.*

The Committee also invited various Honorary Corresponding Members and foreign Architectural Societies to give information as to the condition of affairs in their respective countries, and they desire to express their cordial thanks to the correspondents who have so courteously responded to their appeal. The light thus thrown upon the systems obtaining abroad has been of great value to the Committee in their deliberations. Replies from correspondents in the United States, France, Germany, Belgium, Austria, Spain, and Sweden are printed as an Appendix to this Report.

The Committee, having carefully considered the information placed at their disposal, beg leave to recommend to the Council that a Memorial, signed by the President of the Royal Institute and the Presidents of all the Allied Societies, be sent to all the County and Borough Councils of the United Kingdom, and submit the following draft for the Council's approval :—

To the County Councils, Municipal Councils, and District Councils of Great Britain and Ireland.

The MEMORIAL of the Royal Institute of British Architects and the Architectural Societies in Alliance therewith throughout the United Kingdom hereby sheweth—

That whereas the employment by County or

Municipal Authorities of their officials to execute works of architectural importance is a matter involving grave interests of an artistic, practical, and financial nature, it is for the general welfare of the community that such employment should be regulated by certain conditions.

The Royal Institute of British Architects and the Allied Architectural Societies respectfully beg leave to point out:

(1) *That when the official is an Engineer or Surveyor, the artistic aspect of buildings designed by him is apt to be overlooked or misunderstood by reason of his not having received the artistic training of an Architect.*

(2) *That the Engineer or Surveyor in planning and arranging buildings is fettered by the lack of the expert knowledge possessed by Architects.*

(3) *That greater expense is incurred by employing an Engineer or Surveyor than by employing an Architect. Non-expert planning entails unscientific distribution and consequent expense in construction, often leading to subsequent alterations which involve waste of public money, the amount of which is impossible to be ascertained owing to the complicated nature of official departments. The saving of an Architect's fees is undoubtedly false economy. It is the function of an Architect to obtain for his client the best value for money expended, which special experience not possessed by an Engineer or Surveyor alone enables him to do ; further, his independent position compels him to exercise a closer control over expenditure than the salaried official, whose purely personal interests are not intimately involved.*

(4) *That the time of a County or Municipal Official is so greatly occupied with administrative work, that it is impossible for him, when entrusted with any building scheme of first-class importance, to devote the requisite attention to the essential considerations of Artistic Design, Expert Planning, and Economic Building. Such work is inevitably referred to irresponsible assistants, and an unsatisfactory and expensive building is the result.*

The Royal Institute of British Architects and the Allied Architectural Societies therefore respectfully and earnestly urge upon County and Municipal Authorities :

(1) *That architectural work be not placed in the hands of Engineers or Surveyors.*

(2) *That where it is deemed desirable for architectural work to be carried out by a County or Municipal Official, such official shall be required to have passed the qualifying examinations of the Royal Institute of British Architects.*

(3) *That the work of an Official Architect be restricted to structures of secondary importance, and that all buildings of a monumental character be entrusted to independent Architects to be selected in such a way as may seem best to the local authority.*

[To be signed by the President of the Institute and all the Presidents of Allied Societies.]

The Committee further recommend that such steps be taken as may be further suggested by them to draw public attention to the question through the Press.

(Signed) John W. Simpson,
Chairman of the Committee.

APPENDIX.

From the Secretary American Institute of Architects.

1st *March* 1904.

Dear Sir,—Your letter in reference to the unfortunate practice of placing important architectural commissions in charge of incompetent salaried officials has been received. I regret to say that we have in the United States the same problem to contend with, and have not been able to solve it satisfactorily. The American Institute of Architects have protested in the interests of good architecture, and have persistently attempted to educate the various communities in the United States to a point where they will see the manifest impropriety of such action, but with success only in individual cases.

The most important architectural work of the United States is under the Supervising Architect of the Treasury Department, who has charge of all United States Post Offices, Custom Houses, and Court Houses situated in various parts of the United States. For years this work was done by a corps of draughtsmen under a supervising architect, appointed purely for political reasons, and the work of the office was most unfortunate, both from an art and business standpoint. Through the efforts of the American Institute of Architects the Tarsney Bill was passed by Congress (I enclose a copy),* which allows the Secretary of the Treasury to secure designs by public competition. For several years this Bill was not put into operation; but through Secretary Lyman Gage the first buildings were awarded to architects not salaried officers of the Government, until now, with the sympathy of the present Supervising Architect, Mr. James Knox Taylor, about seventy-five per cent. of the buildings, varying in price from about two hundred thousand to several million dollars, are placed in the charge of private architects with established reputations. We feel that this, the greatest branch of Government work, is in a very satisfactory condition, and the condition has been obtained by securing the passage of the Tarsney Act and by a constant educational effort to show its usefulness to the community. I regret very much to say that we have been unsuccessful in other directions, and those of us who are engaged in the fight sometimes feel greatly discouraged.

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* An Act authorising the Secretary of the Treasury to obtain plans and specifications for public buildings to be erected under the supervision of the Treasury Department, and providing for local supervision of the construction of the same.—*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the Secretary of the Treasury be, and he is hereby, authorised in his discretion to obtain plans, drawings, and specifications for the erection of public buildings for the United States, authorised by Congress to be erected under the supervision and direction of the Secretary of the Treasury and the local supervision of the construction thereof by competition among architects under such conditions as he may prescribe and to make payment for the services of the architect whose plan may be selected out of the appropriations for the respective buildings : *Provided,* That not less than five architects shall be invited by the said Secretary to compete for the furnishing of such plans and specifications and the supervision of such construction : *And provided further,* That the general supervision of the work shall continue in the office of the Supervising Architect of the Treasury Department, the Supervising Architect to be the representative of the Government in all matters connected with the erection and completion of such buildings, the receipt of proposals, the award of contracts therefor, and the disbursement of moneys thereunder, and perform all the duties that now pertain to his office, except the pre-

The United States Army has a corp of engineers who are educated at West Point in fortification, river and harbour work, with no training or sympathy for the art side of building. These engineers are detailed in charge of Army hospitals and other buildings, which come under the Secretary of War, with lamentable results to architectural effects. They are so firmly entrenched behind the regulations and prestige of the Army that we have not yet discovered a way to rout them, although efforts have been made to secure the passage of a Bill similar to the Tarsney Act, applying to all Government buildings.

Congress, against the protest of the Institute, has in a number of instances awarded buildings in Washington by competition to reputable architects, but have placed the superintendence in charge of an Army engineer, making the engineer superior to the architect, and giving him power to overrule the architect in design, plan, or construction. One important building has been erected on this plan, and the result has not been satisfactory.

The Institute has used and is using all its influence with committees to prevent a repetition of such a system in the future; but it is difficult to impress Congress with the idea that the Army engineer is not thoroughly capable from all standpoints.

The most unfortunate blow the art has received in recent years has been the appointment, in place of the architect of the Capitol, of a man who occupied a clerical position under the former architect. He is without training or experience in either construction or design, and yet Congress has placed in his hands the construction of a three-million-dollar building, and he is now having plans prepared with a corps of draughtsmen, and Bills are pending which will place two other structures costing millions in his hands. Being in daily communication with Congressmen, the various Committees of the Institute have been unable to prevent his being placed in charge.

The work under the Tarsney Act has had its effect in the awarding of municipal work in various parts of the United States, the State and City officials using it as a precedent. Its good effect is steadily increasing.

We on this side of the water will watch with interest and sympathy your efforts, and I hope profit by your success.

I will keep you advised of any efforts we make that may be profitable to you.—Yours very truly,

GLENN BROWN,
Secretary American Institute of Architects.

From M. PASCAL, *Hon.Corr.M.*, Paris.

8, Boulevard St-Denis, Paris, le 8 février 1904.

Pardonnez-moi, monsieur et cher collègue, de vous avoir fait attendre ma réponse retardée par le manque de temps.

Nous souffrons en France des mêmes inconvénients que vous signalez. La nomination des personnes chargées de construire les édifices municipaux ou départementaux, laissée à l'arbitraire des maires ou des préfets, relève trop souvent de motifs politiques, de relations d'amitié, et n'offre pas de garanties dans l'intérêt professionnel non plus que dans l'intérêt public.

Nous avons cependant plusieurs correctifs à ces inconvénients.

Tous les projets sont soumis à un Conseil départemental qualifié: Commission des Bâtiments Civils, où des influences étrangères à l'art et à la construction peuvent bien se traduire, mais sont contrebalancées par le nombre des membres constituant ces Conseils. Quand les projets municipaux ou départementaux nécessitent des emprunts, ils sont tous envoyés à Paris, au Ministère de l'Intérieur, qui demande avis au Conseil *Général* des Bâtiments civils avant de donner l'autorisation aux communes considérées comme mineures. Je fais partie de ce Conseil, et il n'y a guère de semaine où, depuis un grand nombre d'années, je n'aie eu à constater l'insuffisance des auteurs de nombreux projets souvent très importants. Quand nous renvoyons à une nouvelle étude, il est rare que les œuvres ne nous reviennent pas sérieusement améliorées; quelquefois notre sévérité a pour conséquence de faire changer d'architecte. Nous nous efforçons toujours de demeurer très impartiaux pour tout ce qui concerne l'art proprement dit, de facon à ne pas nous ingérer dans la liberté d'artiste qui doit être laissée entière aux auteurs des œuvres présentées. Nous jugeons surtout la convenance, la conformité aux programmes, la construction bien plus que les formes, et cette tradition empêche les inconvénients que des pré-

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paration of drawings and specifications for such buildings and the local supervision of the construction thereof, the said drawings and specifications, however, to be subject at all times to modification and change relating to plan or arrangement of building and selection of material therefor as may be directed by the Secretary of the Treasury.

férences académiques ou artistiques pourraient produire.

Maintenant, l'existence d'un diplôme, résultat des études scolaires à notre École des Beaux-Arts, donne de plus en plus aux communes et aux départements la possibilité de choisir parmi des hommes produisant des certificats d'études faites. Ce diplôme, je le répète, est purement scolaire. Il n'est pas question d'un diplôme obligatoire pour une profession que nous croyons devoir rester absolument libre. Nous croyons de plus en plus qu'on s'adressera aux hommes pourvus de ce diplôme et dans le but d'en rendre l'accès plus aisé, nous aurons probablement avant une année sept ou huit Écoles d'État qui seront des succursales de l'École de Paris avec les mêmes exigences et les mêmes sanctions.

Veuillez agréer, monsieur et cher collègue, l'expression de mes sentiments les plus distingués.

J. L. PASCAL.

Translation of the above.

We in France suffer from the same troubles as you mention. The nomination of persons charged with the construction of Municipal or Departmental Buildings, being left to the discretion of the mayors and prefects, is influenced too often by political motives or friendly relationships, and affords no more protection to the interests of the profession than to that of the public.

We have, however, several remedies for these troubles.

All the designs are submitted to a Departmental Commission called the "Commission for Civil Buildings" where influences foreign to Art and good construction may indeed show themselves, but are counterbalanced by the number of members constituting the Commission. When Municipal or Departmental designs necessitate loans they are all sent to Paris, to the Minister of the Interior, who consults "The *General* Council for Civil Buildings" before giving permission to those communes considered as "minor." I am a member of this Council, and there has hardly been a week for a good number of years when I have not had to remark the inefficient authorship of numerous designs, often of great importance. When we send them back for further study, it is seldom that the works do not come back to us greatly improved; sometimes our severity is the cause of the architect being changed. We endeavour always to remain very impartial as regards all that concerns Art properly speaking, so as not to interfere with that liberty of the artist which should be left to the authors of works submitted. We judge primarily convenience, conformity with conditions, and construction much more than design; and this tradition prevents the trouble which academic or artistic preference might produce.

At present the existence of a diploma resulting from scholastic studies at our École des Beaux-Arts affords more and more to the communes and departments the possibility of making their choice from amongst men who can produce the certificate of their completed studies. This diploma, I repeat, is purely scholastic. It is not a question of a compulsory diploma for a profession which we consider should remain absolutely free. We believe that people will apply more and more to men provided with this diploma, and with a view of facilitating communication with them we shall have probably in the course of the year seven or eight State schools forming branches of the Paris school with the same requirements and the same privileges.

From HERR J. STÜBBEN, *Hon.Corr.M.*, Cologne.

Sachsenring 82, *Köln: den* 11. *Feb.* 1904.

SEHR GEEHRTER HERR,—Auf die Anfrage vom 5. d. M. erwidere ich ergebenst, dass das von Ihnen geschilderte Verfahren bei allen grösseren und mittleren deutschen Städten üblich ist. Die Stadtverwaltungen besitzen einen oder meistens mehrere *Architekten* als ihre *Beamten*, welche die für gewöhnlich vorkommenden Hochbauten entwerfen und leiten. Grosse Städte, wie Berlin, München, Dresden, Köln, besitzen *Dutzende* solcher technischen Beamten mit vollkommener architektonischer Ausbildung. Diese Beamten stehen im Jahresgehalt und haben im Falle der Invalidität Anspruch auf Pension.

Man ist in Deutschland mit dieser allgemein in Übung stehenden Einrichtung zufrieden. Aber man fordert, dass bei architektonischen Aufgaben von besonderer künstlerischer oder technischer Bedeutung (z. B. Theater, Museen, Kirchen, Hochschulen, Rathäusern u. s. w.) auch den Privatarchitekten Gelegenheit gegeben werde sich zu beteiligen. Die meisten Städte erfüllen diese Forderung, indem sie zur Lösung derartiger Aufgaben unter den Architekten, die in der Stadt wohnen, oder unter allen Architekten Deutschlands, *Wettbewerbe* (Konkurrenzen) ausschreiben. Diese Wettbewerbe sind entweder *engere*—zwischen wenigen, ausdrücklich ausgewählten Personen—oder *öffentliche*, d.h. unter allgemeiner Zulassung jedes Bewerbers.

Dieses Wettbewerbsverfahren hat sich durchaus bewährt. In der Regel erhält der Sieger die *künstlerische* Leitung des Baues; oft wird ihm auch die *gesamte* Bauleitung übertragen.

Meine Meinung ist, dass die deutschen Städte ein *architektonisch gebildetes* Beamtenpersonal nicht entbehren können, dass sie aber noch mehr als bisher den Weg des beschränkten öffentlichen Wettbewerbs beschreiten sollten, um auch künstlerisch hervorragende Privat-Architekten für die Entwerfung und Ausführung der städtischen Bauten zu gewinnen.—In collegialischer Hochachtung

Herrn W. Locke,
Secretär R.I.B.A.

J. STÜBBEN,
Hon.Corr.Member R.I.B.A.

Translation of the above.

To your enquiry of the 5th I humbly reply that the state of things described by you is customary in all the larger and middle-sized German towns. The municipality possess one, or mostly several architects as their officials, who design and carry out the general run of public buildings.

Large towns, like Berlin, Munich, Dresden, Cologne, possess dozens of such technical officials of high architectural cultivation. These officials are paid an annual salary, and, in the event of illness, have a claim to a pension.

In Germany we are contented with this universal arrangement. But we demand that in the case of architectural projects of especial artistic or technical significance (*i.e.* theatres, museums, churches, high schools, town halls, &c.) opportunity should be given to private architects to participate. Most of the towns meet this demand by apportioning by lot projects of this nature to the architects practising in the towns, or by instituting limited or open competitions.

This competition system has thoroughly justified itself. As a rule the winner has the *artistic* conduct of the building; often the *whole* carrying out of the building is entrusted to him.

My opinion is that the German towns cannot do without a cultivated architectural official staff, but that they ought, much more than they have done hitherto, to institute limited and open competitions, so as to get also the artistically prominent private architects for the design and execution of municipal buildings.

From Herr Julius Kvey, Vienna.

Wien: 26 Februar 1904.

Das Schreiben, welches Ihr Herr Sekretär Locke an unser Vereins-Mitglied Herrn Professor Arch. Max Baron Ferstel richtete, beehren wir uns wie folgt zu beantwortzen:

Die von Ihnen beklagte Gleichgiltigkeit der Gemeindeämter bei Vergebung architektonischer Arbeiten an hiezu nicht Berufene wurde auch in unserem Vaterlande des öfteren wahrgenommen und gab vor kurzem dem österr. Ingenieur- und Architekten-Vereine Veranlassung, eine Aktion einzuleiten, von der er sich einigen Erfolg verspricht.

Es wurden nämlich im Sommer v. J. die vom Vereine festgesetzten Grundsätze für öffentliche Wettbewerbe an alle Staats-, Landes- und grösseren Gemeindebehörden versendet und das Ersuchen beigefügt, man möge vorkommenden Falles für architektonische Arbeiten Wettbewerbe auf Grund der beigeschlossenen Normen ausschreiben. (Ein Exemplar der genannten Grundsätze und der Geschäftsordnung des ständigen Ausschusses für Wettbewerbungsangelegenheiten liegen bei.)

Die eingeleitete Aktion ist zwar noch allzu jungen Datums, als dass wir jetzt schon in der Lage wären, Ihnen positive Ergebnisse derselben mitzuteilen. Wir begrüssen aber die durch Ihr Schreiben gegebene Anregung mit Freude und werden bestrebt sein die von uns eingeleitete, gegen die zahlreichen Übelstände bei Vergebung von architektonischen Arbeiten gerichtete Aktion nach jeder Richtung hin zu verbreiten und zu vertiefen.

Von den in dieser Richtung gefassten Beschlüssen und den Ergebnissen der getroffenen Veranstaltungen werden wir Ihnen fallweise Nachricht geben und bitten Sie, auch uns von den Ihrerseits getroffenen Massnahmen Mitteilung machen zu wollen.

Indem wir zum Schlusse unserer Genugtuung Ausdruck geben, dass sich durch diese Angelegenheit unsere beiden, gleichen Zielen zustrebenden Vereine näher kommen zeichnet,

Hochachtungsvoll
der Vorsteher des
Österr. Ingenieur- u. Architekten-Vereine,
Julius Kvey.

Translation of the above.

We have the honour of answering Mr. Locke's letter sent to us by Baron Ferstel as follows:—

The complained-of indifference of municipal authorities in handing over architectural works to unqualified persons has often been noticed in Austria, and a short time ago gave the Association of Austrian Engineers and Architects reason to institute a course of action which promises certain results.

Last summer the principles for the conduct of open competitions were sent to all State, district, and the larger municipal authorities, and the request added that they should agree to conduct architectural competitions according to their rules. (A copy of these rules and the standing orders of the Standing Committee of Competitions has been forwarded herewith.)

The course of action we have initiated is as yet of too young a date for us to be in a position to notify any positive results; but we welcome the suggestions given us through your letter with pleasure, and will use our best endeavours to broaden and deepen in every direction our action against the numerous abuses in the apportionment of architectural work.

We will give you news when the time comes of the resolutions we take in this direction, and of the results of our arrangements, and we beg you on your side to do the same.

We give expression to our satisfaction that both our Institutes in striving towards the same goal are come near together, and I remain, &c.,
President.

From the President and Secretary Société d'Architecture de Belgique.

Bruxelles: le 13 *février* 1904.

A Monsieur le Secrétaire du Royal Institute.

Monsieur et Cher Collègue,—Nous avons reçu votre intéressante lettre nous exposant la question des architectes municipaux appelés à diriger les nouvelles constructions érigées par les municipalités dont ils sont les fonctionnaires. La question s'est souvent posée en Belgique, où le même ordre de choses existe presque partout. Dans la plupart des villes belges l'architecte communal, fonctionnaire nommé par la ville, est chargé de la conservation des bâtiments et édifices appartenants à la ville et de la construction des nouveaux bâtiments, tels que: écoles, marchés, bibliothèques, etc. Comme en Angleterre ce fonctionnaire, le plus souvent très compétent pour la conservation des bâtiments dont il est chargé, est beaucoup moins qualifié pour la construction d'édifices nouveaux et même pour la restauration d'anciens édifices lorsque celle-ci réclame des études et une compétence spéciale.

Les hôpitaux, hospices, refuges, etc., sont le plus souvent érigés non par les villes ou communes, mais par un organisme spécial: l'Administration des Hospices et Secours. Dans les grandes villes l'administration des hospices a le plus souvent un architecte agissant comme le ferait un architecte communal, c'est-à-dire s'occupant de conservation et d'édification.

Dans les communes et dans les administrations des hospices peu importantes on s'adresse généralement à un architecte privé; toutefois il arrive

assez souvent que l'architecte choisi occupe déjà une fonction dans une administration publique quelconque.

La ville de Bruxelles, la seule en Belgique agissant ainsi, possède un corps de fonctionnaires chargés spécialement de la restauration et de la conservation des édifices appartenant à la ville. Lorsqu'il s'agit de constructions neuves, la ville en charge des architectes privés habitant l'agglomération bruxelloise ; rarement un architecte est appelé deux fois consécutives à travailler dans ces conditions pour l'administration.

C'est là évidemment ce que nous voudrions voir adopter par toutes les villes belges. Malheureusement c'est fort souvent une raison d'économie qui engage la ville à agir autrement. Toutefois nous avons déjà obtenu de certaines administrations provinciales et communales qu'elles défendent à leurs architectes fonctionnaires de travailler soit pour d'autres administrations (sauf certains cas spéciaux) soit pour des particuliers. Mais la mesure n'est pas générale et des plaintes à ce sujet nous arrivent très souvent.

Cette question est pour ainsi dire toujours à l'ordre du jour chez nous, c'est pourquoi nous serons très heureux de connaître les moyens que votre Institut préconisera pour la résoudre ; nous pourrons peut-être en faire notre profit et proposer de semblables mesures à une de nos prochaines réunions.

Dans l'espoir que les quelques renseignements ci-dessus pourront vous être utiles nous vous présentons, monsieur et cher collègue, l'assurance de nos meilleurs sentiments.

Pour la commission administrative,
Le Secrétaire, Le Président,
Jos. Jamin. Franz de Vestel.

Translation of the above.

We have received your interesting letter explaining to us the question of Municipal Architects and their designing of new buildings erected by the municipality of which they are officials. The question has often been put in Belgium, where the same state of things exists nearly everywhere. In the greater number of the Belgian towns the communal architect, an official nominated by the town, is charged with the maintenance of buildings and edifices belonging to the town, and with the construction of new buildings, such as asylums, markets, libraries, &c. As in England this official, generally very competent as regards the maintenance of buildings with which he is charged, is much less qualified for designing new buildings, or even for the restoration of ancient buildings when this latter calls for study and special ability.

Hospitals, asylums, refuges, &c., are generally erected not by the town or commune, but by a special body, the "Asylums." In the larger towns the hospitals administration has generally an architect acting in the same way as a communal architect—that is to say, occupied with maintenance and erection.

The Communes and Administrations of the less important hospitals generally employ a private architect; still it happens often enough that the selected architect already holds a position in some public administration.

The town of Brussels alone in Belgium acts thus, possessing a staff of officials interested specially in restorations and the maintenance of buildings belonging to the town. When there is any question of new constructions the town entrusts them to private architects living within the boundary of Brussels; seldom is an architect called upon under these conditions to work twice consecutively for the Administration.

Clearly this is what we should wish to see adopted by all the towns of Belgium. Unfortunately it is very often a motive of economy which induces the town to act otherwise. Nevertheless we have already induced certain provincial and communal administrations to forbid their official architect to carry out work either for other administrations (except in special cases) or for private clients. But the practice is not general, and complaints on this subject frequently reach us.

This question is, so to say, always "on the Agenda" with us, and we shall be very glad to learn what means your Institute advise as to the solution; we shall perhaps profit thereby and propose similar means at one of our approaching meetings.

From Professor I. G. Clason, *Hon.Corr.M.*, Stockholm.

Kammakaregatan No. 10, *Stockholm : March* 9, 1904.

Dear Sir,—In response to your inquiry as to whether it is customary in this country to put important public architectural work in the hands of not architecturally educated persons I would say that, to my knowledge, it is not usual as far as the working out of drawings and specifications is concerned. The superintendence of the work may, although now more seldom than formerly, be left in the hands of some civil or military engineer.

The larger communities as well as the State institutions have usually a salaried architect in their employ, who does their architectural work—for instance, railway stations, prisons, armouries, hospitals, &c. This does not prevent that even other architects may be employed to make drawings, &c., for such buildings, especially if they are of greater importance.—I am, dear Sir,

Yours very truly,
I. Gust. Clason.

From Señor Don E. M. Repullés y Vargas, *Hon.Corr.M.*, Madrid.

En Espagne tous les architectes sont diplômés par le Gouvernement, après avoir suivi les cours aux écoles d'architecture officielles (celle de Madrid et celle de Barcelone).

Les municipalités des capitales de province (département) ont l'obligation d'avoir des architectes pour le service général des alignements, constructions, voirie, et le reste des questions théoriques. Mais il n'y a pas de règles générales pour les obligations et les droits des dits fonctionnaires facultatifs. Quand une municipalité doit prendre un architecte elle fait un concours en l'annonçant ; et dans la convocation elle exprime les obligations de l'architecte. Dans certaines villes on les interdit de faire des travaux particuliers, en mainte fois on les relève de faire les grandes constructions nouvelles de la municipalité, dans autres cas ils ont l'obligation de les faire. Tout cela varie selon l'importance de la ville.

A Madrid, par exemple, il y a *cinq* architectes pour le service général urbain de la ville (intérieur) et deux pour la zone d'agrandissement, chacun avec un auxiliaire aussi architecte. Pour les eaux et les égouts il y a deux architectes; deux aussi pour le service des incendies, chefs des pompiers, un autre pour le cimetière municipal, un autre, finalement, comme secrétaire du bureau consultatif municipal.

Tous ces architectes ont des appointements annuels fixes, sans l'obligation de faire les nouvelles bâtisses importantes.

La voirie est commandée à des ingénieurs.

Quand une municipalité se propose de faire un grand édifice elle ouvre un concours parmi les architectes et fait la commande à l'un d'eux. Je fais dans ce moment le palais municipal de la ville de Valladolid, par commande spéciale de la municipalité.

Dans les villes petites il n'y a qu'un architecte chargé de tout le service, constructions urbains, rapports, incendies, voirie, etc.

En Espagne il y a une autre corporation qui s'appelle " diputacion provincial," chargée principalement des chemins vicinaux, des écoles des villages, et des établissements charitables, tels que les asiles d'enfants trouvés, les hôpitaux, etc. (Les municipalités ont aussi des asiles.)

Les députations provinciaux ont aussi des architectes titulaires, par obligation signalée dans les lois de l'Etat, chargés des édifices provinciaux et de subvenir aux nécessités des villages de la province (qu'on les paie par honoraires, au surplus de ses appointements annuels). Ils font la construction des écoles et des mairies, la conduction des eaux, etc.

Le Ministère d'Instruction publique et Beaux-Arts a un nombre d'architectes pour toute l'Espagne pour la restauration et réparation des monuments et des édifices de l'Etat.

Le Ministère des Cultes a aussi des architectes diocésains pour les églises.

Le Ministère de la Fabrication (Intérieur) a aussi des architectes pour les édifices des prisons et ceux de bénéficence appartenant à l'Etat.

Le Ministère des Finances a d'une part des architectes inspecteurs de la richesse immobilière, pour les contributions, et d'autres pour les douanes, manufactures des tabacs, etc.

Au plus, il y a des architectes attachés à la maison du roi, aux Chambres, à la Présidence du Conseil des Ministres, et particuliers de quelques édifices de l'Etat.

Du service des constructions militaires, tels que casernes, hôpitaux, académies, etc., sont chargés les ingénieurs militaires.

Translation of the above.

In Spain all architects are diplomated by the Government after going through the courses at the official schools of architecture (Madrid and Barcelona).

The municipalities of the provincial capitals are obliged to have architects for frontage lines, constructions, public thoroughfares, and such technical matters. But there are no general rules for the duties and rights of these officials. When a municipality is to engage an architect a competition is announced, and in the conditions the architect's responsibilities are defined. In certain towns they are forbidden to undertake private work; often they are relieved from taking charge of the large new building operations of the municipality; in other cases they are compelled to take charge of them. All this according to the importance of the town.

At Madrid, for instance, there are *five* architects for the general urban service of the town (interior), and two for the outskirts, each with an assistant architect. For waterworks and sewers there are two architects; two also for the fire brigade, as chief fire brigade officials; one for the municipal cemetery; one finally as secretary of the municipal consultative bureau.

All these architects have fixed annual salaries, without being obliged to undertake important new buildings.

The public roads are in charge of engineers.

When a municipality proposes to erect an important building a competition is instituted among the architects, or one of them is given the commission. At this moment I am building the municipal palace of Valladolid by special commission from the municipality.

In small towns there is only one architect in charge of everything—urban constructions, reports, fires, public roads, &c.

In Spain there is another corporation called the " provincial deputation," chiefly concerned with the parish roads, village schools, and charitable institutions, such as foundling asylums, hospitals, &c. (The municipalities also have asylums.)

The " provincial deputations " also have titular architects, appointed under statutory obligations, responsible for rural buildings and for the general needs of the villages of the province. They are paid fees in addition to annual salary. They prepare designs for schools, *mairies*, waterworks, &c.

The Ministry of Public Instruction and Fine Arts has a number of architects for all Spain for the restoration and reparation of monuments and State buildings.

The Ministry of Public Worship has also diocesan architects for churches.

The Ministry of the Interior has also architects for prisons and for charitable institutions belonging to the State.

The Ministry of Finance has, on the one hand, architects for State lands and taxed property, and on the other hand architects for custom houses, tobacco manufactories, &c.

Moreover there are architects attached to the Royal Household, the Chambers, the Presidency of the Council of Ministers, and special architects attached to a few State buildings.

Military works, such as barracks, hospitals, academies, &c., are in the hands of military engineers.

The Council adopted the foregoing Report and approved the terms of the draft Memorial submitted with it. The latter document, specially printed at the Chiswick Press on large folio paper, has been sent within the last few days to all the County Councils, Municipal Councils, and District Councils of any importance in the United Kingdom—nearly sixteen hundred such bodies in all having been approached. A facsimile of the Memorial, on a considerably reduced scale, is given on the following pages:—

THE·MEMORIAL·OF·THE ROYAL·INSTITVTE·OF BRITISH·ARCHITECTS·& THE·ARCHITECTVRAL SOCIETIES·IN·ALLIANCE THEREWITH·THROVGHOVT THE·VNITED·KINGDOM

TO

THE COVNTY COVNCILS MVNICIPAL COVNCILS AND DISTRICT COVNCILS OF GREAT BRITAIN AND IRELAND

* * *

THE MEMORIAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS AND THE ARCHITECTURAL SOCIETIES IN ALLIANCE THEREWITH THROUGHOUT THE UNITED KINGDOM HEREBY SHEWETH:

THAT whereas the employment by County or Municipal Authorities of their officials to execute works of architectural importance is a matter involving grave interests of an artistic, practical, and financial nature, it is for the general welfare of the community that such employment should be regulated by certain conditions.

THE Royal Institute of British Architects and the Allied Architectural Societies respectfully beg leave to point out:

(1) That when the official is an Engineer or Surveyor, the artistic aspect of buildings designed by him is apt to be overlooked or misunderstood by reason of his not having received the artistic training of an Architect.

(2) That the Engineer or Surveyor in planning and arranging buildings is fettered by the lack of the expert knowledge possessed by Architects,

(3) That greater expense is incurred by employing an Engineer or Surveyor than by employing an Architect. Non-expert planning entails unscientific distribution and consequent expense in construction, often leading to subsequent alterations which involve waste of public money, the amount of which is impossible to be ascertained owing to the complicated nature of official departments. The saving of an Architect's fees is undoubtedly false economy. It is the function of an Architect to obtain for his client the best value for money expended, which special experience not possessed by an Engineer or Surveyor alone enables him to do; further, his independent position compels him to exercise a closer control over expenditure than the salaried official, whose purely personal interests are not intimately involved.

(4) That the time of a County or Municipal Official is so greatly occupied with administrative work, that it is impossible for him, when entrusted with any building scheme of first-class importance, to devote the requisite attention to the essential considerations of Artistic Design, Expert Planning, and Economic Building. Such work is inevitably referred to irresponsible assistants, and an unsatisfactory and expensive building is the result.

THE Royal Institute of British Architects and the Allied Architectural Societies therefore respectfully and earnestly urge upon County and Municipal Authorities:

(1) That architectural work be not placed in the hands of Engineers or Surveyors.

(2) That where it is deemed desirable for architectural work to be carried out by a County or Municipal Official,

such official shall be required to have passed the qualifying examinations of the Royal Institute of British Architects.

(3) That the work of an Official Architect be restricted to structures of secondary importance, and that all buildings of a monumental character be entrusted to independent Architects to be selected in such a way as may seem best to the local authority.

John Belcher A.R.A.	President of the Royal Institute of British Architects.
Alexander Graham	Hon. Secretary.
W. J. Locke	Secretary.
E. Guy Dawber	President of the Architectural Association.
Arthur Clyne	President of the Aberdeen Society of Architects.
Thomas Cooper	President of the Birmingham Architectural Association.
George H. Oatley	President of the Bristol Society of Architects.
Chilton James	President of the Cardiff, South Wales and Monmouthshire Architects' Society.
Charles Cole	President of the Devon and Exeter Architectural Society.
P. H. Thoms	President of the Dundee Institute of Architecture, Science and Art.

Harold O. Tarbolton.	President of the Edinburgh Architectural Association.
John Keppie.	President of the Glasgow Institute of Architects.
G. C. Ashlin R.H.A.	President of the Royal Institute of the Architects of Ireland.
George. Bertram. Bulmer.	President of the Leeds and Yorkshire Architectural Society.
H. L. Goddard.	President of the Leicester and Leicestershire Society of Architects.
Philip Thicknesse.	President of the Liverpool Architectural Society.
J. W. Beaumont.	President of the Manchester Society of Architects.
J. Walton Taylor	President of the Northern Architectural Association.
Arthur W. Brewill	President of the Nottingham Architectural Society.
Thos. Winder.	President of the Sheffield Society of Architects and Surveyors.
W. J. Gilliland	President of the Ulster Society of Architects.
Herbert Davis	President of the York Architectural Society.

MINUTES. III.

At the Third General Meeting (Business and Ordinary) of the Session 1904–05, held Monday, 5th December 1904, at 8 p.m.—Present, Mr. T. E. Collcutt, *Vice-President*, in the Chair, 52 Fellows (including 17 members of the Council), 46 Associates (including 2 members of the Council), 2 Hon. Associates, and several visitors: the Minutes of the Meeting held 21st November 1904 [p. 68] were taken as read and signed as correct.

The Hon. Secretary announced the decease of the following members:—Charles John Ferguson, F.S.A. [*A.*], and Francis William Bedford [*F.*], *Ashpitel Prizeman* 1890, *Owen Jones Student* 1891–92.

The following members were introduced and formally admitted by the Chairman: George Hubbard, F.S.A. [*F.*], Alfred John Dunn [*A.*], Arthur Ernest M'Kewan [*A.*], and George Salway Nicol [*A.*].

On the business of the election of members being brought forward, it having been pointed out by members present that the following provision of By-law 7 relating to provincial candidates had not been complied with—viz. "in the case of a nomination of any person residing in a district or province where there is an Allied Society as hereinafter defined, but whose nomination has not been forwarded through such Society, the Secretary shall send notice thereof to such Allied Society, and invite observations thereon"—it was resolved after discussion that the election of the provincial candidates for Fellowship be stayed pending the carrying out of the formalities prescribed by the by-law.

The following candidates were then elected by show of hands under By-law 9:—

As Fellows (14).

WILLIAM ARTHUR AICKMAN.
SHAPOORJEE NUSSERWANJEE CHANDABHOY (Bombay).
JOHN BURLAND CHUBB.
BERNARD JOHN DICKSEE [*A.*].
WILLIAM DUNN.
FRANK EMLEY (Johannesburg).
ALEXANDER CUNNINGHAM FORRESTER.
ALBERT LEWIS GUY [*A.*].
WILLIAM LECK (Johannesburg).
EDWARD CHARLES PHILIP MONSON.
HERBERT ALEXANDER PELLY [*A.*].
EDWARD THORNTON [*A.*] (Calcutta).
WILLIAM FROWDE YOUNG.
ROBERT WATSON [*A.*].

As Associates (32).

RICHARD JOHN ALLISON [*Special Examination* 1904].
ERNEST GLADSTONE ALLEN [*Probationer* 1900, *Student* 1902, *Qualified* 1904] (Croydon).
WALTER HERVEY BAGOT [*Probationer* 1901, *Student* 1903, *Qualified* 1904] (Adelaide, South Australia).
WILLIAM JOHN BALL [*Probationer* 1895, *Student* 1896, *Qualified* 1904] (Crewe).
ERNEST BATES [*Probationer* 1894, *Student* 1897, *Qualified* 1904].
CLAUDE BATLEY [*Probationer* 1898, *Student* 1903, *Qualified* 1904] (Kettering).
WILLIAM EDWARD ARTHUR BROWN [*Probationer* 1899, *Student* 1901, *Qualified* 1904].
ARCHIBALD NEIL CAMPBELL [*Probationer* 1900, *Student* 1901, *Qualified* 1904].
WILLIAM ALFRED THOMAS CARTER [*Probationer* 1898, *Student* 1902, *Qualified* 1904].
CHARLES MICHAEL CHILDS [*Probationer* 1896, *Student* 1899, *Qualified* 1904].
BENJAMIN CHARLES CHILWELL [*Probationer* 1898, *Student* 1900, *Qualified* 1904] (Wednesbury).
CHARLES BARRY CLEVELAND [*Probationer* 1899, *Student* 1901, *Qualified* 1904].
NORMAN CULLEY [*Probationer* 1901, *Student* 1902, *Qualified* 1904] (Huddersfield).
SPENCER CAREY CURTIS [*Special Examination* 1904].
WILLIAM THOMAS CURTIS [*Probationer* 1898, *Student* 1901, *Qualified* 1904].
WILLIAM JAMES DAVIES [*Probationer* 1897, *Student* 1899, *Qualified* 1904] (Sidcup).
ALFRED HARRY GLOYNE [*Probationer* 1891, *Student* 1894, *Qualified* 1904].
HENRY PERCY GORDON [*Probationer* 1894, *Student* 1901, *Qualified* 1904].
PERCIVAL WILLIAM HAWKINS [*Probationer* 1894, *Student* 1900, *Qualified* 1904].
BASIL BRAMSTON HOOPER [*Probationer* 1902, *Student* 1902, *Qualified* 1904] (Dunedin, New Zealand).
VINCENT HOOPER [*Probationer* 1896, *Student* 1900, *Qualified* 1904].
PERCY CUNLIFFE PILLING [*Probationer* 1899, *Student* 1902, *Qualified* 1904] (Bolton).
KENNETH DUNCAN STUART ROBINSON [*Probationer* 1901, *Student* 1901, *Qualified* 1904].
GEORGE ALLEN ROSS [*Special Examination* 1904] (Montreal, Canada).
TOM TREVOR SAWDAY [*Probationer* 1900, *Student* 1902, *Qualified* 1904] (Leicester).
ARCHIBALD SCOTT, Jun. [*Probationer* 1898, *Student* 1901, *Qualified* 1904] (Glasgow).
NORMAN ODELL SEARLE [*Probationer* 1897, *Student* 1903, *Qualified* 1904].
ROBERT ERNEST STEWARDSON [*Probationer* 1900, *Student* 1902, *Qualified* 1904].
FRANK EDWARD STRATTON [*Probationer* 1897, *Student* 1900, *Qualified* 1904].
PERCY JAMES WESTWOOD [*Probationer* 1898, *Student* 1902, *Qualified* 1904].
GEORGE HENRY WIDDOWS [*Special Examination* 1904] (Derby).
FRANK WILSON [*Probationer* 1893, *Student* 1896, *Qualified* 1904] (Sheffield).

As Honorary Associate.

GEORGE NOBLE, COUNT PLUNKETT, B.L., F.S.A., M.R.I.A. (Dublin).

The Secretary announced the results of the Preliminary, Intermediate, Final, and Special Examinations held during the month of November [p. 79]. Also that the Council proposed to award the Ashpitel Prize for the year to Mr. Charles Lovett Gill.

The Secretary announced that by a resolution of the Council pursuant to By-law 20 the following gentlemen had ceased to be members of the Royal Institute, viz.:—George Legg and John Groom.

The Hon. Secretary announced the receipt of books presented to the Library, and a vote of thanks was passed to the donors.

On the motion of the Chairman it was resolved, against three dissentients, that the Registration Committee appointed by the General Body be allowed to co-opt additional members.

The following proposition, moved by Mr. G. A. T. Middleton [*A.*], was accepted by the Chairman on behalf of the Council—viz. That it be referred to the Council to consider the advisability of appointing an Official Assessor of Architectural Competitions.

The Meeting then proceeded to the discussion of the Papers read at the last meeting on "Construction and Strength of Reinforced Concrete Columns," by William Dunn [*F.*], and "Monolithic Constructions in Hennebique's Ferro-Concrete," by M. Mouchel, a description illustrated by lantern slides of buildings carried out in Hennebique's Ferro-Concrete being first given by M. Mouchel's assistant, and a further communication being read from Mr. Dunn.

The proceedings were brought to a close at 10.20 p.m.

ARCHITECTURE AND BUILDING REGULATIONS.

By Lacy W. Ridge [*F.*] and James S. Gibson [*F.*].

Read before the Royal Institute of British Architects, Monday, 19th December 1904.

I.—BUILDING BY-LAWS, SPECIALLY IN RURAL DISTRICTS. By Lacy W. Ridge [*F.*].

When asked by the Council to take up once more this question of local building by-laws I felt I could in no wise refuse, though at first it seemed as if it could merely be to repeat in some new way the old arguments. I trust, however, that the altered circumstances of the case since in 1899 we went as deputations to the Local Government Board and the increasing breadth of view which in time comes to any man who thinks clearly on a subject may enable me to lay before you, necessarily in broad outline only, a scheme fit to be submitted to the Government, and embodied with proper consideration and due technical drafting in a Bill for presentation to Parliament in the coming Session.

That the oppression and inconvenience of these by-laws are being constantly more and more widely felt may be read in the columns of those papers which interest themselves in life in the country, and are particularly shown by the formation of the Building By-laws Reform Association. To this several architects have given their assistance, though the Association is intended especially as the organ of the landowners and country gentlemen who find themselves subjected to unnecessary interference without any corresponding advantage to themselves, their workmen, or their tenants. The Duke of Westminster occupies the post of President of the Society, while Sir William Chance, whom I hoped to see here this evening, is its moving spirit. We hoped also to see Sir William Grantham. It can be no small degree of annoyance that can cause a Judge of the High Court to come down from the Bench in order to resist the action of the local authority in his district, and we may be quite sure he feels deeply the injury done to his poorer neighbours by the present administration of the law.

Let us for the night take up the judicial position. Though the trouble these by-laws give us is great, the quarrel is not directly ours. We do not bear the expense they entail, we are not liable for the penalties, and we may charge (if we will) for all extra work they involve. We are the last people in the world to desire to see the land covered with unworthy or insanitary buildings. In this as in so many things else we may take a judicial, a judicious view. Let me also suggest to all outside our body who may come to consider our views that they are also the views of experts.

Now what are the main grounds of objections to the rural by-laws?

Primarily, and chiefly that, they are an interference with the liberty of the subject out of all proportion to the necessities of the case or the good done by them. It is now a commonplace of the discussion that the Local Government Board erred in granting, with little or no consideration, "urban" powers to "rural" authorities. Some of you may remember as I do the surprise of an official—and he of the most amiable—when it was pointed out to him that every power given to an authority was so much liberty taken away from everyone under its jurisdiction. That view had not presented itself.

Next the whole scheme is founded on the fallacy that in every district there are a large number of fit persons able and willing to serve on local administrative bodies, with no axes to grind, with plenty of time on their hands, and capable *inter alia* of drawing up a code of workable building by-laws. Parliament and the public never pretended to swallow a grosser piece of humbug. The local authorities depend entirely on the Local Government Board, and unfortunately we find that Board in the position of saying with perfect technical truth that the by-laws are not made by them, when as a matter of fact they stand no chance of ever having been made except on their models. However, it is perfectly true that they cannot be unmade by the Local Government Board; and, as after four or five years of agitation the Local Councils show no signs of surrendering their powers, it is necessary to go to Parliament. The By-laws Reform Association have drafted a Bill, and, in my view, we must support their contention that legislation is necessary.

It is not difficult now, after the experience and discussions that have taken place, to say what is really necessary, and I am about to suggest that a few of the most important by-laws should be put into the proposed Bill, or be left to be promulgated for the whole country by the Local Government Board. At least that would give us uniformity, and therein some relief. If in the minds of those who enacted that the by-laws should be made locally there was an idea that special suitability to each locality would be obtained, it can only be said that the scheme has therein failed abjectly.

The next objection to the present system is its unnecessary clumsiness. This is illustrated more particularly by the requirement of the deposit of drawings. This, accompanied by the intimation that no building can be begun without the previous approval of the local authority, is one of the greatest causes of irritation.

The London Building Acts have been administered for two hundred years and more without such deposit of drawings. Many architects, especially in country places, object most strongly to the overhauling of their drawings by rival practitioners, or by officials who may at any moment become rivals, and, remember, to all other members of these local bodies the drawings are practically unintelligible. My observation is that the study of the drawings mostly produces some such criticism as that you must make a wall half a brick thicker unless you diminish its length by a $4\frac{1}{2}$-inch break, or that you must make a wall between two rooms on the ground floor two and a half bricks thick, because somewhere above the roof it becomes an external wall; that is to say, things in themselves manifestly of no importance, but which must be complied with to save the face of the by-law.

This hard-and-fast ruling and keeping to the strict letter of their regulations by bodies who cannot trust themselves to administer with common sense, in practice puts the public at the mercy of the least intelligent member on the Board. It is always he who cannot understand what is under discussion who falls back on the formula: "This is our by-law, and it must be obeyed." It never enters his head to think whether the public has the slightest interest in the proposed enforcement. Of course, I know it is said local bodies should insist on the letter of the law all round, or there will be all sorts of jobbery. Very likely; perhaps that will be so. But that is just my point. To say that is a confession that you cannot secure in these rural districts, by *popular election*, men to be trusted with any discretionary power; and if they are not fit to exercise discretion they are not fit to have authority at all over the buildings of their district.

Mr. Justice Grantham's case illustrates in vivid colours the annoyance caused by the regulations as to drawings. That which has become public property has all the appearance of being a storm long brewing, and on the subject of the drawings it burst. Most of us have suffered in our time from indifferent reproductions, and I do not suppose that the *Daily Mail* quite did justice to the originals submitted to the Chailey Rural Council, but the illustrations there produced enabled one to take a view of the matter. Naturally I do not ask you to say that the drawings should have been accepted by the Council, or that they gave evidence of that study of the individual building which arises in the making of good working drawings, or that they could be the basis of a contract favourable to the employer. Looked at, however, as instructions given by a land owner to his steward or clerk of works, or to a builder who had already been engaged in erecting similar cottages on the same estate, they might prove all that was necessary. Similarly, apart from the by-law and the dignity of the Chailey Rural Council, I fail to see that the public interest demanded anything more than a mere written notice being given that at such a place there were to be erected cottages as before. The inspector could look in and see the rest.

Quite privately, and between ourselves as architects, I have a fairly well-grounded opinion that Sir William's private interests would have been promoted by his having a proper set of drawings; but that is beside the mark.

We are undoubtedly suffering in this country, and particularly in this matter of building laws, from a constantly increasing growth of officialdom. There is a growing inclination on the part of official bodies and their officers to believe that the whole world is to walk by their directions, and that quite without regard to any useful result to be produced.

We see it in London in the position thrust (contrary to the provisions of the statute) on the new district surveyors by the London County Council. The Building Acts were till recently administered on the professional responsibility of an independent professional architect. The present conditions of tenure diminish the personal responsibility of the man, and he is rapidly becoming a mere official without discretion and unwilling to take responsibility. I recently had a case where the site of an existing house was not normal; that is, its long side was to the street, and its short side at right angles to it. The old question arose as to where was the rear, a constant source of trouble with these office-written by-laws. The manifest facts of the case were ignored, and I was made to go for approval of my addition to the London County Council. I sent in my application, with drawings and diagrams, to be treated among hundreds of others by whole nests of officials collected at Spring Gardens. They did what they could for me, and eventually things came all right; but I have no hesitation in saying that the question never ought to have been raised, and that no one of the officials at Spring Gardens, nor the whole of them put together, were nearly as competent as my friend the district surveyor on the spot to judge as to any public considerations affecting the carrying out of the proposed work. It would have been childish to suggest that any case of overcrowding or any public interest was involved. It was merely a case of a man naturally of great ability, and once presumably of fair breadth of view, feeling himself called on to put the narrowest possible construction on a word in a section of the Act which manifestly did not suit the particular site. Anxiety and expense were caused to my client, several officials were employed at the public cost on a subject in which the public had no interest whatever.

Again, and this time in the country in a house standing alone in six acres of ground. The foreman pointed out that a 4-inch soil and ventilation pipe for one w.c. would not fit into the half-brick recess prepared for it. I authorised, in accordance with London precedent, the use of 3½-inch pipe, and in went a purpose-made pipe with a great L.C.C. stamped on it. The builder was served with a notice to substitute a 4-inch pipe. I wrote and explained the reason for using the 3½-inch pipe and its recognised sufficiency, pleaded the experience and *bona fides* of the architect, builder, and foreman, but in vain. We were to be summoned on a certain day. In the meantime I wrote to the clerk of the magistrates explaining the case. At what point common sense came in I know not, but no summons was issued.

Why, however, should the builder and myself be subjected to all this unnecessary worry, and one's client be frightened (more or less) because an ill-informed official could not or might not see the sufficiency of the work executed?

In this same district I am told that there is a building on which some three or four thousand pounds have been laid out, but the proprietor declines to go on in consequence of the ridiculous limitations to which he finds himself subject under the by-laws.

A good illustration of the theoretical by-law is furnished in the very last 1903 Rural By-laws, No. 22, by which every w.c. is to have not only a window but also an air brick in an external wall or other ventilating appliance. The theorist, writing in an official chair in Whitehall, is told that there must be an inlet and an outlet ventilator to change the air, and believes it. I have seen that air brick, but never saw it left in action. In the hundred and thirty or so cubic feet of the average w.c. one opening is in some winds fairly severe.

Now these by-laws, founded originally on the London Building Act (in itself a piece of panic legislation), reinforced by the suggestions of theorists and faddists, extended recklessly from urban to rural districts, enforced by officials unfit or unwilling to put any but the narrowest interpretation upon them, in the hands of local authorities who receive their instructions from the Local Government Board, who in their turn repudiate the responsibility, and regarded on all hands as binding to the letter, constitute a petty tyranny of a class to which hitherto Englishmen have not submitted themselves.

The state of things is stopping building in the country, and above all is cutting off the supply of labourers' cottages.

It is now generally recognised that there is no efficient way out of the difficulty except by legislation.

With respect to this it is important to realise the proper limits of legislation. It is not for the law as a fairy grandmother to lay down in such a case as this that which is desirable, or comfortable, or even economical, or good building, but only that which the public safety demands should be enacted and enforced by officials appointed for the public and paid at the public expense.

I suggest that the following by-laws should be enacted in connection with the proposed Act. Omission to observe any of them should be an offence under the Act for which the owner or builder could be proceeded against by the local authority; or, in case of their neglect, by any superior local authority, such as the County Council, having jurisdiction in the locality.

It will be convenient to say a few words on each as I proceed in explanation of the manner in which it seems to me it will work.

> A. *Notice.*—Every person shall give notice in writing to the local authority who intends to erect—
>
> A dwelling-house; a factory; a building intended for the assembly of the public; any building situate within 30 feet of a public highway.

The last clause would tend to keep farmyards and buildings away from the road, which would be an evident advantage.

On the receipt of the notice the local authority would probably find it convenient in most cases to forward to the intending builder a copy of the by-laws in force. You will note no drawings are required.

> B. *Width of Road.*—No person shall erect any building (other than a porch or covered way not more than one story in height) within 20 feet of the centre of any public road or highway, as defined by the local authority.

Buildings jutting out into the road are often eyesores in country districts. The main object of course is to leave the public a sufficient highway and to avoid the difficulties which often arise when rural districts begin to assume an urban character, traffic increases, and roads have to be widened.

> C. *Open Space.*—Every person who shall erect a new dwelling-house shall provide in connection therewith an open space, exclusively belonging thereto, equal in area at the least to the area of the building measured at the ground-floor story. He shall also cause two sides, at the least, of the building to be lighted and ventilated from such open space or from a street or other public open space adjoining such building.

This would perhaps be severe in towns, and could hardly be applied to rebuilding on old sites with respect to which a saving clause would in some places be necessary. In the country and in freshly formed suburbs the demand is quite reasonable.

> D. *Anti-Damp Layer and Damp Course.*—Every person who shall erect a dwelling-house; a factory; or place for public assembly shall cause the whole surface or site of such building within the external walls to be covered with a layer of cement concrete, rammed solid, at least 6 inches thick, and shall provide an efficient damp course of sheet lead, asphalte, or slates laid in cement in the walls or foundations of such building, or shall provide such other means to prevent damp rising within the building as shall be approved by the local authority.

This is a shortened form of By-laws 3 and 4 of the Local Government's Model of 1903, and should certainly be retained for reasons respecting health, and, in my view, should be of universal application, as I know of no soil from which damp cannot be drawn out by heat. If the damp-proof layer could be omitted anywhere it would be on the chalk.

The following proposed by-laws appear to me to be sanitary arrangements which should be of universal application, and require no justification here.

> E. *Lobby to Closets.*—Every person who shall erect a water-closet or earth-closet in connection with any building shall cause the same to be properly ventilated and lighted by a window in the side thereof, and he shall cause every closet which is not reached through the open air to be separated from any dwelling-room, bedroom, workroom, or shop by a sufficiently ventilated lobby.
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> F. *Privy.*—Every person who shall erect a privy or closet which is not provided with means of supplying it with dry earth or other deodoriser, and with appliances for the frequent removal of filth, shall cause the same to be placed at a distance of 15 feet at the least from any dwelling-house, factory, workshop, or public building, and from any highway or public footpath.
>
> G. *Soil-pipes and Wastes.*—Every person who shall erect within any building a water-closet or any sink for the reception of liquid or solid filth shall connect the waste-pipe therefrom to an examination chamber or to a soil-pipe outside the building and provided with efficient through ventilation, and he shall also cause the waste from every bath, lavatory, and sink to pass into the open air before being discharged into any drain. He shall not allow the water from any rain-water pipe, nor the overflow from any rain-water tank or from any cistern, to discharge directly into any drain used for foul water.
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> H. *Disposal of Sewage.*—Every person who shall erect, or who is liable to maintain,

any system of drainage shall provide that the discharge from any drain, or the overflow from any cesspool, shall not enter any ditch or running stream in such a manner as to pollute the water therein; nor shall they be so disposed of as to be a nuisance or detrimental to health.

These seven by-laws, submitted in rough draft, I think, suffice for the general regulation of building so far as the public interest is concerned in ordinary rural districts. Except the first, which involves the potentiality of obtaining for the public a proper road when the necessity arises, they embody the most elementary principles of sanitation, and the amount of expenditure on matters connected with the health by the public fully justifies their enforcement.

The last as to the disposal of sewage will strike you no doubt as very general, going little, if at all, beyond the common law of the land. Until, however, the local authority is in a position to provide a common drainage scheme, or the Local Government Board can give us as the result of its inquiries a sound system for the disposal of sewage, to lay down more definite rules is calculated to fetter experiments which may prove useful, and certainly a taking upon themselves by the local governing bodies responsibilities which they are not at present fitted to bear.

One reflection suggests itself here. Have we not somewhat recklessly admitted the system of removing by water carriage away from our houses matter which ought to have been returned to the land? Is not our wrong doing constantly finding us out both in the smaller cases which we architects have to treat and in the larger problems involved in the disposal of the sewage of our cities?

Of the position which arises when the local authority furnishes means for the removal of sewage I shall speak hereafter. It should be the subject of a separate division of the by-laws.

I. *Party-wall.*—One other subject not included in the Model Rural By-laws of 1903 should, it seems to me, most certainly be added and be of universal application. The duty of not setting one's neighbours' property on fire ought to be recognised. The efficiency of the party-wall for this purpose in small buildings, such as for the most part we have now in view, is manifest. The Royal Institute has already submitted to the Local Government Board a carefully drawn clause on this subject, but it was neglected in the new model in favour apparently of provisions as to the sizes of windows and heights of stories, which seem to assume that the proposed buildings are to be carried out by lunatics. It may be well to remind some of you that the Institute does not suggest that party-walls should be carried through the roof in small buildings, while in warehouses it suggests increased height, as in the London Building Act. Considerations of comfort and decency, apart altogether from risk of fire, suggest that houses intended for occupation by different families should be efficiently separated.

Hitherto I have dealt with laws which it seems to me may be made universal in this country without oppression or inconvenience to the public. The system requires no submission of drawings, no assent before building is to be given or withheld by any local authority, and the points are so little technical that such supervision as is needed can be given by any man who is fit to be appointed an inspector at all.

When the local authority furnishes sewers for the use of its district a new stage is reached. Plans showing the drains needed must be submitted and the works to be executed agreed to as a condition precedent to having the use of the sewers. I am quite certain that the friction and unpleasantness which now in some cases arise would be avoided if the local authority and their officers would co-operate with architects in doing the best for the buildings under the special circumstances of each case, rather than regard their by-laws as the laws of the Medes and Persians, however useless or inapplicable they may be. The Institute in 1899 took no great exception to the model by-laws as to drains. They have been carefully overhauled by a committee of the Building By-laws Reform Association, and without doubt their suggestions are worthy of the attention of the Local Government Board.

The administration of by-laws with respect to the formation of roads and streets in the spirit of agreement rather than of command would also do much to remove irritation. The legal obligations of the authorities in this matter are not at present satisfactorily clear, and it would be far better if a definite understanding were come to in each case, that if the roads and sewers were made in such and such a manner they would be taken over on their proper completion. I fear the present process is to ignore much of that which has been done, and to remake the road when it is taken over at a heavy charge on the frontagers.

I would certainly do nothing to diminish the powers of local authorities to deal with dangerous structures or places unfit for human habitation. On the other hand it should be distinctly understood that these powers might be extended to deal with new buildings should the necessity arise. The inspector would not then be compelled to look quietly on if he saw a floor binder being bedded an inch below the hearth into a chimney breast, or a porous brick put into a wall with one end exposed to the wet wind (perhaps off the sea) and the other prepared to breed mildew on any plastering or paper that might come on it.

Such a system well administered would be far more useful to stop bad building than hard-and-fast by-laws, under which indeed the latter of my examples would pass. The local council and their inspector would soon discover the cases where intervention was necessary. They would leave alone the respectable builder, contractor, and architect.

Now, leaving out of consideration for the present London and all our large manufacturing or business towns, places properly called urban, where the value of land is such that the temptation to crowd or overbuild must necessarily be restrained by law, and where buildings are so crowded together that no amount of precaution against fire seems excessive, is not the scheme I have roughly sketched out sufficient for all practical purposes ?

In the most open country, and universally throughout England, whether the particular local authority chose to move in the matter or not, space would be left for the roads, the cottages would not be huddled together, the laws of common cleanliness would be observed in sanitary matters, and a material protection from the spread of fire would be furnished.

At the next stage when the local authority supplied the means of removing sewage their requirements would have force.

Where new suburbs arose the local authority could influence the directions of the roads and the work of making them ; they would in right of their sewers direct the sanitation, and with their general powers for the suppression of nuisances and the treatment of dangerous and unfit structures it seems to me that all the authority that is necessary is supplied.

The system I suggest is simple, elastic, worked at small trouble to the local council, and with but few officials, and is, it seems to me, applicable even in our smaller towns—in fact, until the stage is reached at which the community is justified in employing a really competent professional adviser. It runs on the lines of the previous communication we sent to the Local Government Board, and should you again honour me with your confidence, as on the previous occasion, I trust you will send this paper on for the consideration of that body now when the matter is so very much in the public mind, and there is a fair chance of relief.

II.—ARCHITECTURAL DESIGN AND THE LONDON BUILDING ACT.

By James S. Gibson [*F.*].

IN laying before you the following reflections on the influence of the London Building Act on architectural design, I do so in the hope that they will tend to make others with greater and wider experience in the working and interpretation of that Act give us their views and opinions, so that any defects may be remedied in future enactments.

The consideration of this subject has, very properly, been divided into two parts—the constructional or practical side, and the æsthetic or artistic—and I shall endeavour to confine my remarks to the latter part. In so far as the construction and materials of a building have a direct bearing on its artistic development, I must of course take cognisance of them; but I shall not trespass on the ground of my friend Mr. Lacy W. Ridge any further than is absolutely necessary.

The Building Act of 1894 is probably to the majority of London architects a series of regulations with which the artistic spirit is continually in conflict, and yet, in justice to the framers of that Act, it must be said that buildings erected in compliance with its enactments will be structurally sound, healthy to occupy, and safe for public use.

The first consideration presenting itself to my mind is, "What ought to be, very broadly, the objects of a Building Act suitable for the largest and probably the wealthiest city the world has ever seen?" It appears to me that the objects to be attained by such an Act are twofold: first, in all matters relating to the construction of buildings it must contain such provisions as are necessary for the safety, health, and well-being of the bodies of the inhabitants, and in the arrangement and design of streets ample facilities for the carrying on of their daily work; while, secondly, its regulations should be such as would encourage the mental growth of the people by providing an environment likely to stimulate thought and invention.

I will endeavour to show in detail to what extent the Act of 1894 complies with these essentials.

It may create a smile to suggest that an Act of Parliament dealing with the construction of buildings and streets should be concerned with the moral and mental well-being of the people, and so it shall be my endeavour to prove that such concern is of vital importance to us as a nation. History tells us, with ever-recurring insistence, that all those great nations which have left their mark on the pages of time realised the twofold character of man's nature, his physical and his mental side; and the higher the civilisation of these nations was developed, the more acutely did they feel the necessity of ministering to both. From very early times it was declared that "man cannot live by bread alone"; the mind must be nourished just as the body is fed, and the nation failing to provide mental food cannot develop fully.

There can be no doubt of the immense influence exercised by the buildings of Athens, Imperial Rome, Italy of the fifteenth century, England of the thirteenth to fifteenth centuries, on the minds of the peoples of these countries: an influence which is hardly equalled by the works of their poets, painters, sculptors, and statesmen. The mind is moulded by environment, and it in turn reacts on its surroundings to modify them, this action and reaction being the sign of life and progress, and so the world moves on.

In this London of ours we have some six millions of people living under a form of local self-government, the supreme bodies responsible for the matters with which we are now concerned being the Corporation of the City and the London County Council.

The London of to-day is largely the result of the deeds or misdeeds of our predecessors, and the London of to-morrow will be just what we care to make it.

Now the knowledge of London possessed by the majority of this vast aggregation of humanity is confined to its streets and the buildings which line them; a very small minority of its inhabitants ever enter its larger public or Government buildings. Their ideas of the greatness, the vastness, the majesty, the meanness, the ugliness, and the beauty of this city are gathered from what they see from the pavements; and the influence of the architecture of London on the mass is derived almost wholly from the external design of her street architecture.

As already stated, the primary object of an ideal Building Act is to make provision for the safety, health, and bodily well-being of the inhabitants, and generally speaking this has already been attained. In the other section, the design and arrangement of streets to afford ample facilities for the carrying on of our daily work, I think the Act is not only wholly inadequate, but has not even touched the fringe of the subject. I think this is amply proved by the constitution of a Royal Commission on the Traffic of London Streets, for when you find a Government appointing a Royal Commission on any subject you may safely conclude that subject is ripe for investigation even by politicians.

In the *personnel* of that Commission it is rather amusing to find that all architects, eminent or otherwise, have been ignored; and, as far as I know, no architect has appeared before it to express any views on the laying out and design of London streets, which I take to be a part of the Commission's duties. It is one of the little ironies of life that if Sir Christopher Wren's scheme for laying out the new streets of London after the Great Fire had been carried into effect, it is very probable there would have been no need for a Royal Commission on Traffic in 1904—and Sir Christopher Wren was only an architect and surveyor.

If we turn to that portion of the Act dealing with the widths of streets, we find 40 feet is set forth as the width of practically all new streets within a radius of two miles from St. Paul's Cathedral, and outside that radius new streets which may be regarded as main lines of communication may be required to have a maximum width of 60 feet, the Council having no powers to demand any greater width.

This provision practically means that whole acres of mean alleys and ways now lined by small two-storied houses in such thickly populated districts as Bow and Bromley, Walworth, the Borough, and Lambeth may be rebuilt with 40 or 50½ feet streets, the buildings 40 or 80 feet high, thus creating traffic and health evils as great as those now existing.

Outside this two-mile radius some little attempt has been made to deal with main traffic lines, but inside this circle it seems only possible to deal with it by special Acts of Parliament, such as the laying out of the Kingsway and other similar schemes.

When one realises the enormous annual loss to the community directly occasioned by the inadequate widths of the main streets in the central part of London, the lack of broad and direct lines of street communication east and west, north and south, on both banks of the river—when this is manifested day after day by the congested traffic in practically every main street within a radius of one mile of St. Paul's, group after group of cabs, motor cars, and 'buses intermixed with slow moving drays and carts stopped every quarter of a mile, the dislocation of streams of traffic occasioned by the loading and discharge of vans in Fleet Street, the Strand, Cheapside, Bond Street, and such like thoroughfares, it must be patent to even the most indifferent that the time has come when, to put it on the lowest commercial grounds, the whole great question of the realignment of the main traffic arteries and their enlargement to the work to be done must be seriously taken in hand.

All new streets and the widening of those already existing will have to be part of one great scheme, conceived on large and generous lines, so that ultimately we shall have a city of noble streets. The present methods of rounding off a corner at Ludgate Hill or Cheapside, of adding a few feet to the south of Piccadilly at St. James's Street, and a few feet to the north at Swan & Edgar's corner are, I venture to think, childish performances, and only wasteful of the time and money expended on them.

In dealing with the laying-out of new areas on the outskirts of London, at the present time we find large estates are being cut up by the speculative builder into streets of so-called "desirable and attractive villa residences," and I think the time has come when we must take steps to compel the owners to lay out that land in the interests of the community as well as in the interests of the owner. The root of the evil is the land question, and the rights of the community are at present ruthlessly sacrificed to the rights of the landowner. We practically allow the house builder a free hand in laying out vast tracts of mean streets, lined with meretricious or vulgarly pretentious houses, disposed as he thinks best for himself, and with no regard to the surroundings, the main lines of traffic, or the fact that his area is an integral part of the whole town. We compel him to conform in the matter of bricks and plaster and drains, and certainly insist on his streets being 40 feet wide; but whether his streets block up a vista formerly existing, or ruin the whole aspect of the neighbourhood, appears to us a matter of no public importance.

The community have the streets at least as common property; they have the power at present of insisting that their sewers and lighting and cleansing condition shall be dealt with in their interests. Surely the time has come when they should be given the power to determine in the public interest the main lines of all newly laid-out areas.

To return to the consideration of street alignment in the more central area of the town, the utter failure of the Shaftesbury Avenue scheme either as an adequate roadway or as an example of architectural street design has evidently not been lost upon the authorities, for we find the London County Council setting out the Kingsway at 100 feet wide instead of the 60 feet of Shaftesbury Avenue, and this is a step in the right direction. Let us see how our street widths compare with those of Continental and American cities.

In London we have Whitehall, varying from 120 to about 145 feet, the Victoria Embankment 120 feet, Regent Street Quadrant 85 feet, Piccadilly 75 feet, Queen Victoria Street 70 feet, Oxford Street about 64 feet, Cheapside 60 feet, Ludgate Hill 60 feet, and Holborn Viaduct 90 feet.

In Paris we find the Avenue des Champs-Elysées 230 feet, Avenue Henri Martin 130 feet, Avenue de l'Opéra, Avenue de la République, Boulevard Haussmann, and Boulevard Saint-Germain all 98 feet, and Rue de Rivoli 72 feet wide, and public roads are now a minimum width of 39 feet.

In Berlin we find Unter den Linden 190 feet, Bülow Strasse and Belle Alliance Strasse 160 feet, Potsdamer Strasse and Friedrich Wilhelm Strasse 110 feet, and twelve other important city streets 75 feet wide and over. New streets formed in the suburbs of Berlin are from 60 to 110 feet wide.

In Vienna the Ringstrasse is 185 feet, while the New Ringstrasse of Budapesth is 108 feet, and the Andrassy Strasse, in the same town, is 145 feet.

In Copenhagen the Alte Ringstrasse is 160 feet, and in Antwerp the Haupt Ringstrasse is 185 feet. The Ruperbahn in Hamburg is 210 feet, the Esplanade is 145 feet, and Palmaille 110 feet.

In Edinburgh we find, in what is called the New Town, Princes Street 100 feet, George Street 100 feet, and Queen Street 90 feet. In all new streets a minimum width of 50 feet is required between the building lines, and main streets are to be 60 feet.

I think you will agree with me that any amended Act should authorise the Council to provide for streets up to 100 feet in width if we are to obviate in the future the inadequacies of the present.

Following on the widths of streets, which are of primary importance in the architectural aspect of a city, the next point is the relation of the height of building to the width of street.

This point has been dealt with so thoroughly by the editor of *The Builder* on 20th February 1904 that I cannot do better than quote his words :—

"In considering Section 49 we are again astonished to find that the Institute Committee have made no protest against the absurd anomaly by which, according to the existing Act, a street 6 inches less than 50 feet in width is restricted to buildings the same height as the width of the street, while a street 6 inches over 50 feet in width may be lined with buildings 80 feet high. This anomaly is not, of course, so plainly specified in words, but that is the effect of the section, which we pointed out in the strongest manner at the time when the present Act was under consideration ; and it seems extraordinary that a committee appointed to consider the improvement of the Act should have let such a point pass them without notice or suggestion. It is one of the greatest absurdities of the existing Act, apparently arising from nothing but the desire to save the trouble of more detailed regulation of heights. The rule, plain and simple, and easily laid down, ought to be that the flanking buildings do not exceed in height the distance between the opposite frontages. The Act lays down this principle in regard to any street under 50 feet in width, and immediately quits it as soon as that limit is passed. It is perfectly ridiculous ; it is contrary to common sense, to sanitary conditions, and to architectural effect."

In Boston we find that the heights of buildings may be two and a half times the width of the street, with a maximum height of 125 feet. If in any street the building is kept behind the building line, its height may be increased as the measurement of width is taken from the face of the building to the opposite side of the street, but the maximum height of 125 feet must not be exceeded.

In New York apartment and tenement houses of fireproof construction may be 150 feet in height on streets exceeding 79 feet wide, or about twice the width of the street ; while in streets 79 feet wide and under the height may be up to 125 feet.

For office, mercantile, and public buildings there appears to be no limit of height and no ratio to width of street: this I regard as one of the most serious of evils in modern city building, and one that will in a very few years bring its own retribution.

In Berlin the height of the front wall may be equal to the width of the street, with a maximum of 22 metres, or about 72 feet. If buildings are set back from the building line, then the height may be increased by the amount set back, but must not exceed 22 metres high. Additional height is allowed for towers, spires, outlook windows, and other features up to one-third of additional maximum heights on streets over 12 metres wide.

In Edinburgh a height of 60 feet is allowed, with additional heights for special architectural features ; and in some cases a height of 80 feet to the wall-head has been allowed.

In buildings in the City of London the dominant factor governing the height is usually the rights of lights of the opposite owners, and this has often determined the reasonableness of the heights of new buildings.

I think that when streets are increased beyond a width of 60 feet the heights may be also increased beyond the width of the street without detriment to its architectural aspect, and I venture to suggest a schedule of maximum heights for streets within a radius of 1½ miles of St. Paul's Cathedral which would work out as follows :—

Width of Street.	Ratio of Height of Buildings to Width of Street.	Approximate Lowest Buildings.	Approximate Highest Buildings.
40 to 60 feet	1·000	40 feet	60 feet
60 to 80 „	1·125	67 „	90 „
80 to 100 „	1·250	100 „	125 „

For streets outside the mile and a half radius from St. Paul's Cathedral and within a three-mile radius the heights should be equal to the widths of the streets, while outside the three-mile radius the heights should be less than the widths of the streets, with a maximum height of ·75 of the width for streets of 100 feet wide.

The practical result of this arrangement would be the provision of wider streets and lower buildings in the outer zones of the town, thus ensuring better circulation of air and greater facilities for traffic, and this would at the same time tend to preserve the natural aspect of the country, instead of the present practice of turning every suburb into an overcrowded mass of so-called " villa residences " erected irrespective of the rights of the community.

Another point of great importance is the provision of air spaces between the houses in the outer zones, and, considering the comparatively small value of the land, this should be insisted upon. In the outskirts of Berlin and other German towns it is stipulated that there shall be a space between the houses for aëration, and this is a provision which is worthy of our serious consideration.

In the New York Building Laws we find the building frontage must bear some relation to the height; as, for instance, if a tenement house exceeds 100 feet high it must have a frontage of at least 40 feet wide; and although the Act appears to deal only with the frontage of comparatively high buildings of this class, the suggestion is one of value to us. If under the present Act we are to have buildings 80 feet high, and under any future Act buildings of a greater height, then I think the frontage should bear some reasonable relation to the height, or else an effort should be made to get uniformity of design for contiguous narrow frontages, as I believe it to be almost artistically impossible to design satisfactory frontages of, say, 14 or 15 feet wide and of those great heights.

The next point to which I would direct attention is the provision of air spaces to buildings, more particularly on corner sites in London, where by Section 41, Sub-section 4, the height of the building is limited to 30 feet upon such part of the space at the rear of the building as the Council may think fit; and although this is modified by Sub-section 6 the whole question of air spaces wants thorough revision.

In New York private houses may cover 90 per cent. of the area of the land, and tenement houses on corner sites 92 per cent.

Hotels may cover all the land on the ground and first floors and 95 per cent. above this level up to five stories in height.

Office buildings not on a corner site may cover all the ground and first floors and 90 per cent. at all higher levels.

In Edinburgh, for tenement houses over three stories high, one half of the site may be covered by buildings, with special provision for a lesser open space at the discretion of the building authorities of the city.

It would tend to continuity of street frontage design if the restrictions as to heights of buildings on such rear spaces were abolished and percentages of areas of land to be covered substituted, and this would render unnecessary all these special applications to the Council which architects resort to only after they have tried every other expedient to obtain the effect they desire, and if these percentages were properly drawn up there is no reason to think the interests of the community would suffer in any degree.

We now come to the minor details of the Act which bear upon the design of buildings, and I will try to deal with them in their order of importance.

First comes the regulation governing the areas of openings and recesses in external walls, and Section 54 appears to be drawn up in ignorance of the fact that walls other than perfectly flat surfaces having openings and recesses therein are often employed in architectural work.

No provision seems to have been made for, say, a curtain wall with attached or detached columns at intervals, for a wall composed of piers or buttresses, or the many other types which are essential to artistic design, sound in construction and economical in materials. The strict interpretation of that section means very often the misuse of materials by compelling the designer to put them where they are an obstacle to sound building in order to obtain the areas wanted for window and other openings.

In its present form I do not think this section is properly drawn, even for a plain wall with openings and recesses in it, and as a regulation governing the whole subject of the relative areas of solids and voids in external walls of varied design and construction it is wholly inadequate.

The Council of the Institute made some attempt to remedy this defect by suggesting regulations for the pier construction of the external walls of buildings, but these go only a little way towards giving the architect freedom to employ his materials in the best manner, and thus enabling him to produce the most artistic design.

In Section 28 of the New York Building Laws, when piers or buttresses are used in place of walls it is enacted that "in all walls of the thickness specified in this code the same amount of materials may be used in piers or buttresses." This regulation is sound common sense applied to construction, but is not sufficiently comprehensive.

The projection of cornices is a matter of very considerable importance in architectural design, and the limitation of this projection to 2 feet 6 inches is one of those arbitrary dimensions that appears to meet with wholesale disapproval. Its inadequacy cannot be better illustrated than by referring to the main cornice of the Gaiety Restaurant buildings now being erected in the Strand under the control of the County Council. This cornice projects, I believe, about 4 feet 6 inches over the pavement, and I do not consider it in any way injures the amenity of the street. I do not think it should be necessary, in streets of ample width, to set back the building line in order to obtain an adequate projection of cornice, and yet this is practically what has to be done under the present Act. I consider, further, that in streets of 50 feet width, and over, the projection of cornices, balconies, oriel, and bay windows should have fixed ratios to the width of street and their erection be permitted without having recourse to special application to the Council: a procedure which necessitates a lot of useless drawing and writing and filing of documents that cannot be of any possible value in the future.

In Berlin oriel windows and balconies may project only in streets over 15 metres wide, beginning with a projection of ·60 metre for streets of that width, and proportionately increasing to 1·30 metre in streets 22 metres wide.

The clear height between the bottom of the oriel and the pavement is fixed at 3 metres, and this is equivalent to our 10 feet restriction.

While dealing with projections of oriels I believe that Clause A, Sub-section 6 of Section 73, is sometimes interpreted by district surveyors to restrict the projection of oriels to 3 feet measured over the *mouldings* of any features or cornices, and the Institute has remodelled this clause so that the projection of 3 feet will be taken from the face of the building to the face of the projection, and so make clear a clause which is liable to misinterpretation.

The angle of inclination of roofs is, I think, amply provided for by the present Act, and within the angles specified it should be practicable to design any type of gable, pediment, or roof. I think, however, some provision should be made for overhanging eaves and verges, which do not strictly come under the heading of cornices, as there are great artistic possibilities in the treatment of wall-heads, gables, and pediments with overhanging eaves, and these would not interfere with the amenity of the streets in any greater degree than cornices of similar projection. The construction could be done to the satisfaction of the district surveyor, and would, I fancy, not be so dangerous as some gables and cornices now allowed under the Act.

The last matter of detail dealing with the design of street frontages for buildings of a commercial kind is the regulations governing shop fronts. I think it is agreed by all architects that the present method of allowing the ground and first stories of a building to be apparently unsupported is one which should be amended, and if it were made impossible to erect huge sheets of glass on these floors, and provide instead some adequate support to the upper part of the structure, it would be a step in the direction of sober and logical design. The demand for these enormous windows has come from the shopkeepers alone, and it is surely another proof that "we are only a nation of shopkeepers" that we have allowed this class to determine the character of our street frontages. I am sure the public would welcome a return to more modestly designed shop fronts, and I do not think that trade would suffer in consequence of the change.

The Institute has made some suggestions dealing with this matter whereby sufficient piers or other supports of granite, stone, brick, metal or other approved materials shall be constructed from the level of the ground to the main wall of the superstructure above, and these piers shall not at any time be covered with mirrors or otherwise concealed.

Having now completed the survey of the details of the Act I would conclude by referring to three matters of grave public importance.

The first is the lack of any provision in the present Act for the use of protected steel construction of buildings; and considering the advantages to be obtained by its adoption, the saving in floor space, the important bearing which it has on the areas of support, the difference its proper use will make on the proportion of solids and voids in external wall design, it is greatly to be regretted that its adoption as a building material was not foreseen and provided for. The use of this material in such large structures as the Hotels Cecil, Savoy, and Ritz, where all its properties could be most fully utilised, is a matter of public importance; but we see instead these buildings being constructionally erected in this material, and then the external and other walls built around the constructional steel in the same huge masses of brick and stonework as are necessary for buildings erected of these latter materials only. Practically the whole advantages of steel construction are nullified, the floor areas are taken up with great walls and piers that only overload the steel or have to be self-supporting, and are of no constructional value to the buildings, window areas are cut down to comply with regulations governing walls of a totally different kind, and enormous masses of materials and labour are absolutely wasted. Any responsible body alive to its public duties or possessing competent architectural advice would long ere now have taken measures to remedy an omission which can only be characterised as flagrant.

The second point of grave public importance is the exemption of certain buildings of railway, canal, and dock companies from the operation of Parts 6 and 7 regulating matters of construction and design.

It is perhaps to be expected that the enormously powerful influences which these companies are able to bring to bear on Parliament should result in their securing advantages which are not in harmony with the public good, but it is nevertheless greatly to be regretted that any private company should be able to override the public interest. The buildings of the Government, Mansion House, Guildhall, Sessions House of the Old Bailey, and such like structures are, I think, quite properly exempted, for history has shown that the bodies controlling these buildings have generally had some regard for artistic and architectural work, have often employed competent architects, and have done what they could to conserve the interests of architecture and erect buildings on hygienic principles.

It might justly be said that the exact contrary is a true statement of the procedure of railway companies in regard to the buildings they have erected in and around London.

One can only think with indignation of such atrocious structures as Broad Street, London Bridge, Ludgate Hill, and Victoria Stations, to mention a few examples of the ill-doing of these private companies; and that a great city like this should be powerless to insist on the instant removal of such sheds is nothing less than a public scandal.

The last point of public importance is the great desirability of all district surveyors being practising architects. The Institute has expressed the same view, and I would take this opportunity of emphasising it.

In the interpretation of the various regulations dealing with complex modern buildings it is essential to have men who are experienced in modern architectural practice, men who know the difficulties that are constantly arising, who are intimately conversant with the schemes of architects as judged by their designs.

If architecture is to have any vitality in this country, it can only be by sympathetic treatment at the hands of those carrying out the laws. Constant repression will discourage and enfeeble it, and above all red tape will strangle it. Nothing can be more inimical to the interests of the public, to the growth of architecture, to the beautifying of our streets, than to have as interpreters and administrators of a complex Building Act persons who, although highly skilled in technical knowledge and masters of routine, are inexperienced in the erection of buildings.

The second section of the Building Laws of New York consists of two and a quarter lines, and reads as follows:—"This ordinance is hereby declared to be remedial, and is to be construed liberally, to secure the beneficial interests and purposes thereof." *

This I would commend to the consideration of all district surveyors, reminding them that although their primary duty is to the public and to conserve all its interests it may also at the same time be found possible to encourage those phases of art which are in harmony with sound building.

I hope that the attention of the City Corporation and the London County Council will be given to all the matters raised by the reading of the Papers to-night, and that they will use every means in their power in the future to further the development of London on lines that will give us a noble city.

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* Some interesting details of the New York Building Code are given in Mr. Thomas Cooper's Presidential Address to the Birmingham Architectural Association published in the present issue of the JOURNAL.—ED.

DISCUSSION.

The President, Mr. John Belcher, A.R.A., in the Chair.

Mr. R. A. READ, Hon. Secretary of the Building By-laws Reform Association, who rose at the invitation of the President, in proposing a vote of thanks to the authors of the Papers, said that Mr. Ridge appeared to advocate legislation somewhat in detail as a remedy for existing difficulties in rural districts. Mr. Gibson, however, had very properly pointed out how badly the London Building Act had been dealt with in Parliament. That Act, indeed, was nothing but a glorification of by-laws by embodying them in an Act of Parliament. Therefore he rather differed from Mr. Ridge on that part of his Paper, but that was the only point where he was not in agreement with him. It gave him great pleasure to be able to testify, both from immediate experience in connection with rural by-laws, and from past experience in connection with the London Building Act, to the enormous assistance the legal profession derived from being brought in contact in these matters with representatives of the Institute. He thought they should be able, outside Parliament, in their various capacities, to meet and determine those things which were rightly debated in detail among those who had experience of details and their bearings. It was impossible, for example, either on the floor of the House or in the Committee Rooms, to deal adequately with the question of the construction of buildings. Therefore he ventured to urge upon the Institute the desirability of avoiding anything like detailed legislation if they want assistance in the matter of rural by-laws. That general legislation was needed he agreed, but what was wanted was legislation which should leave architects a free hand to be able, so long as they were doing what they considered best for their clients, and their clients were doing what they considered was right for their tenants and by the public, to erect such buildings as experience had taught were good and necessary for the purposes for which they may be intended to be used. It might be utopian to think that in a building by-law one had only to say a building should be good for the purpose it was intended for, but that really should be sufficient. He quite agreed that they would have to meet the necessities of the case, and that the Act or the by-laws would have to be administered by local authorities such as they were, and not as they wished them to be. Therefore, if immediate relief was to be got from oppressive by-laws, it must be by way of exemption from by-laws, and not by re-enacting others which would give them much trouble. The view of the Building By-laws Reform Association was that a code of by-laws should be framed which should be administered with the existing machinery, without unduly hampering those who had to provide either large houses for the well-to-do, or small cottages for the poorer classes. It was on this last point that the matter had been brought so prominently into view, and at the present moment it had become a burning question how to make it possible to provide adequate cottage accommodation within the means of those whose incomes were derived mainly from the land. Therefore it seemed that the only restrictions required were that there should be sufficient space provided and sufficiently sound cottages. When a local authority was prepared to deal with the sewage of such places, then as Mr. Ridge said, certain rules of detail would have to be complied with. Until that time came it might be left with safety to the more general laws which were applicable to country places. The Building By-laws Reform Association had laid before Mr. Long a short Bill the main features of which were, first, that houses, whether small or large, in places other than those governed by special Building Acts, such as London and other large cities, should, subject to certain spaces being provided around them, be free from all structural building by-laws. The next point was that the Local Government Board should have power, where it found that a by-law sanctioned by it was oppressive and unsuited to the district in which it was applied, to recall it, and to substitute, *ad interim*, another by-law in its place. By these means the central authority and the local authority would be enabled adequately to protect the public interests in all directions. If they were really anxious to get immediate relief (and the pressure would seem to indicate that there was anxiety to get immediate relief), it could only be done by bringing forward a Bill which should offer the fewest points for opposition; because, in the present state of the legislature, unless the Government would bring in a Bill there was little chance of its being carried; and, further, there was very little chance of its being carried unless the measure proposed by the Government contained a minimum of points to be considered.

Mr. RIDGE asked to be allowed a word of explanation. Mr. Read, he said, had not quite followed his proposition with regard to an Act of Parliament. His proposition was that an Act of Parliament should be passed merely and simply to enable the Local Government Board to take away all the powers they had so foolishly granted to these urban bodies, and to substitute for them such simple by-laws as should seem right to them to enact.

Mr. GEORGE HUBBARD, F.S.A., in seconding the vote of thanks, referred to Mr. Ridge's proposed by-law (C) with regard to the open space to be provided in connection with new buildings. That proposal was undoubtedly very much better than the existing by-law, which required the area to be the full width of the building at the rear. That by-law made it utterly impossible to build a terrace of houses round a crescent. An architect of his acquaintance submitted some plans to the London County Council for a terrace of houses round a crescent, and the County Council in their wisdom refused to pass those plans, because they were not in accordance with the Building Act. Their argument was that it was impossible to build a terrace of houses on a crescent, because, of necessity, the area at the back must be less in width than the site in front. He understood, however, that in consideration of some concession on the part of the owner, the plans were ultimately passed, and the crescent was allowed to be built. There was another absurdity with regard to the width of roads which must be apparent to all. Though the London County Council have constructed a crescent road, other people are not allowed to do so without their consent. The Act required all new roads to communicate directly between existing roads. A crescent, of course, was not a direct road, and, therefore, under the Council's own Regulations it was impossible to build a crescent road. The absurdity of the urban district council's by-laws was brought home to him in a very practical fashion some time ago. The building line of a house he was erecting was set back 40 feet from the road. After the house was completed, his client wished to have a billiard-room added. The only way to do this was by making the billiard-room project 2 feet 6 inches in front of the building line, making its set-back 37 feet 6 inches instead of 40 feet. The plans were sent to the urban district council, and notice given that the building was to be begun. It was not necessary to obtain their consent; the Act only required that the plans should be submitted. The building was begun, and the trenches and the concrete and the footings of the walls were all viewed by the surveyor and approved of. When, however, the roof was being put on, he received a communication from the urban district council telling him that the plans had not been passed; that the billiard-room was in front of the building line, and that it must be set back. He pointed out that the surveyor had passed the work, and that it was impossible to make the alteration now. His representations were unavailing. He was served with an injunction, and appeared before the magistrates. The magistrates agreed that the Council had, in a sense, condoned the offence, but decided that the Public Health Act had been infringed, and they fined him £20. He thought he had got out of the difficulty pretty lightly; his client paid the fine, and the work was proceeded with. But, to his utter surprise, he was informed by the urban district council that the building must not go on, and that they were going to bring an action against him. The £20 fine, they said, only condoned for the offence up to the time of their objection. The action was brought in the High Court, judgment was given against him, and he had to pull down the billiard-room. The house in question was a large building, standing in its own ample grounds; there was not a house within a quarter of a mile of it on one side, and the house on the opposite side could not even see the billiard-room, yet they induced the people in the next house to come into the Courts and object to it. There was something absolutely absurd in the wording of the Public Health Act with regard to the building line. Section 3 ran: "It shall not be lawful in any urban district, without the written consent of the urban authority, to erect or bring forward any house or building in any street, or any part of such house or building, beyond the front main wall of the house or building on either side thereof in the same street." That meant that no portion of the building in front of the main front wall of the adjoining building could be brought forward without their written consent. Take the case of a road with plots at the side of it. The man who first puts up his building determines the building line. Supposing his next-door neighbour wishes to have a large bay window, that window would be a part of the house, and it must not project beyond the main front wall of the adjoining building; so the bay window must be set to the line of the adjoining building. The main front wall is naturally set back, and institutes a new building line. Now, if the man next door to the one with the bay window chooses to have a large front garden, and puts his house right at the back of his garden, he starts a new building line, and, under the wording of the Act, nobody could bring his building forward beyond his, and if the building was right at the very back, the remainder of those sites were rendered absolutely worthless.

Mr. WILLIAM WOODWARD [*A.*] asked whether it would not be desirable, considering the importance of both Papers, and considering how necessary it was at this juncture that due consideration should be given to the subject, to adjourn the discussion until the next meeting.

It having been agreed to continue the discussion on Mr. Ridge's Paper, and to postpone that on Mr. Gibson's Paper till Monday the 9th January,

Mr. DOUGLASS MATHEWS [*F.*] pointed out that they would very shortly have to deal with the Bills to be laid before Parliament, and no doubt the discussion would then take a different form from that at the present time. He suggested that the discussion on Mr. Ridge's Paper only should be proceeded with at the present meeting.

Mr. RIDGE said he thought it would be better to separate the two subjects. They had to do with totally different buildings. A man might be strongly in favour of regulations with regard to the one, and be of opinion that with regard to the other the fewer regulations there were the better.

Mr. WOODWARD continued: Such Papers as Mr. Ridge's, he said, demanded very plain, outspoken language, and Mr. Ridge had certainly carried out that characteristic. He had made a very proper attack on officialdom of all kinds. The whole trouble involved in carrying out architectural work in this country was due to the interference of people more or less acquainted with the subjects they had to deal with. Architects in practice know the constant pin-pricks and narrow-minded interferences which led to loss of temper on the part of the architects and loss of money on the part of the clients, with no resulting benefit whatever to the public at large. Take, for instance, the enormous number of drawings which have to be submitted to the various local bodies now. They were not satisfied with one set, but must have a second, and in some cases a third set. Architects were inundated with paper and red tape, and the sooner they got rid of these banes to the working of their business the better for everybody concerned. It had been pointed out to him, with regard to the London County Council's requirement of drawings, that the architect was at no loss, he was paid for them; but every architect would agree that one of the great difficulties they had to contend with was asking their clients to pay for an enormous and unnecessary number of drawings. A client naturally thought that the 5 per cent. covered such work, but the architect had to make a charge for fifty or sixty absolutely unnecessary drawings, simply to conform to the narrow-minded and idle desire of untechnical men who knew nothing whatever about the business, except what they got from technical institutions. With regard to rural by-laws, they must all sympathise with Mr. Justice Grantham. There was an instance where the whole trouble had been created by men not sufficiently informed upon the subject brought before them. His own view was that if a thoroughly competent architect or surveyor was employed, an architect about to erect a cottage or a building would take his drawings in pencil to that man, and in a quarter of an hour the necessary revision of the drawings would be made. The surveyor would initial those drawings, and the architect would send in one copy, after he had made the emendations required. That was absolutely all that was necessary in carrying on building works in this country. What did they have to submit to? Delays and constant revision of drawings, simply to satisfy the enormous staff of the different boards. Take, for example, the drains; drawings, plans and sections of each floor had to be submitted simply to show a w.c. on the first or second floor. This was an absolutely unnecessary expenditure of time and money on the part of the architect, and the sooner that was remedied the better. The whole thing depended, as Mr. Ridge had said, upon common sense. If they could only import common sense into these questions they would find that all the evils now referred to would be disposed of. He could not agree with Mr. Read in his remark that legislation should not be provided, and that detailed by-laws should not be provided. The by-laws suggested by Mr. Ridge were just the sort of outline by-laws to which everybody should conform. He quite agreed with Mr. Ridge's proposal that the area of the vacant land should be equal to the area of land covered by bricks and mortar wherever it might be. That would get rid of the difficulty of insuring the necessary healthy open space. With regard to not being able to start a building before the drawings were approved, he did not see why a man should wait until it suited the convenience of local bodies. He should submit his drawings, and then, when they were submitted and just gone through with the surveyor, he should be able to make a start, and, if there was anything wrong, the surveyor should at once call the attention of the architect to it, and not allow him, as the last speaker said, to go on with his building when he knew, or should know, that it was in contravention of any of the by-laws. He most heartily supported Mr. Ridge's Paper, and believed that, well supported by the Institute at the present moment, it would do a great deal of good.

Mr. MAURICE B. ADAMS [*F.*] said he could not quite admit all that Mr. Woodward had said with regard to this question of drawings. It must be remembered that a good many of these buildings were not carried out by architects at all, and he thought they should be prepared to go as far as Mr. Ridge had gone, and accept the necessity of being obliged, and even willing, to submit to a certain amount of red-tapeism in order that general interests might be protected against those who chose to build without assistance from proper architects, or against speculators who wished to put up buildings such as the Institute would deprecate. With reference to the width of roads, so far as he understood, the district council or the rural council at the present moment had no power to define the width of a road other than the minimum width of road. Very often great hardships arise when a road is made through a property which adjoins another ownership; that is to say, through a vacant plot left for the purpose of building a house. Someone takes up the land at the rear and proceeds to develop it. The space of the aforesaid plot is too wide for continuing the road at its normal width of 40 feet, the plot frontage measuring, say, 45 feet. The man who is going to develop the land at the back is not going, if he can help it, to make his building site roads 45 feet wide. He adheres to the minimum width, as allowing him the most space for the houses he is going to erect. But if he makes the connecting road leading to his land 40 feet he will have to pay for making up the road through that depth adjoining your plot. So he proceeds to give up this 5 feet to the public authority in order that the gentleman who happens to own the adjoining property will have to make up this road to his own detriment with no possible advantage either in the public interest or to his own property. The District Board say, " We cannot help ourselves. We can, to a certain extent, use discretion as to the contour of the road, but practically, at the present moment, we are unable to help you, and you may have to pay not only for half a 40 foot road but half a 45 foot road, which will, no doubt, put you to great expense, because it will convert your land into an end plot, and will destroy, by the buildings on the land at the back of you, that rural character you have hitherto enjoyed." A very great hardship thus ensues. He (Mr. Adams) happened to be the possessor of a piece of land where exactly that state of things had arisen. His tenant had already told him he should expect, when his term expired, to pay less rent for the house, and he (Mr. Adams) might have to pay for making up a road that he did not want at all, and whereby no public improvement whatever resulted from the needless and partially enhanced width at this given point only. That state of things presented only a little instance of a case in which it was necessary to fortify and assist the rural council in order that they might protect the public, and individuals too, against that which was manifestly unfair. He did not quite gather from Mr. Ridge whether it would come within the purview of such an Act as he proposed that the local council should be empowered to determine the maximum width of new roads ; that is to say, their contour and shape. At the present moment, so far as he could understand, they had no such power. He thought all would agree that they owed Mr. Ridge a considerable debt of gratitude for the way in which he had continually assisted in this question of remodelling the country by-laws, and also for the very practical way in which he had brought this matter before the meeting on the present occasion.*

The PRESIDENT, in putting the vote, said that they had all felt at times the oppression of rural by-laws, and the difficulty of dealing with rural authorities ; and therefore they felt great sympathy with those who had had such experiences as had been related that evening. The chief point which both Papers had impressed upon them, and which Mr. Woodward had also emphasised, was the increase of officialism. They wanted men to deal with these matters who would be responsible and who would not shirk responsibility—the kind of men who, after great experience, probably in active practice, would be able to determine each case on its own merits. They wanted also such simple rural by-laws as were suggested by Mr. Ridge. These were matters which concerned the community at large, and upon which legislation was required. Other details should be left to the common sense and discretion of the responsible officials.

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* A point which escaped me for the moment on Monday, in my desire not to detain the meeting, was one so material to the matter in hand that perhaps I may be permitted to mention it here, much stress having been laid upon the necessity of submitting plans before cottages and other buildings can be erected. As a matter of fact, the district councils in some places cannot compel anyone to submit plans at all, and houses are built without this being done—the builder in such cases proceeding at his own risk; and the only thing that the local authority can do is to make him pull down anything which does not comply with their particular by-laws. I know of a case in point at the present moment, and the same speculator in the same district had not long ago to pull down and materially alter some flats to make them conform to the by-laws. On the principle that possession is nine points of the law, speculators of this type prefer to risk process for compulsory removal, and the ratepayers are put to much expense, while very bad building work is allowed to pass, very often, rather than go to extremes with such unscrupulous people. In supporting Mr. Ridge, one very important reason for pressing home his conclusions consists in the chaotic state of things which exists in these matters. In some localities plans can be insisted on ; in others no by-laws exist at all; and elsewhere what I have described is prevalent. We as architects, for every good reason, ought to exert our influence for what it is worth in order to keep up the standard of sound and sanitary building. All will agree with that ; but while wishing to minimise the power of mere officialdom and to promote freedom of action, we must not ignore the danger of making bad, scamping work more easy to carry out than it is already.—M. B. A.

⁂ *Discussion adjourned to Monday, 9th January* 1905.

INCORP. 1837 1887

9, Conduit Street, London, W., *24th Dec.* 1904.

CHRONICLE.

Architecture and Building Regulations.

The discussion of the Papers read at the meeting of the 19th December by Messrs. Lacy W. Ridge [*F.*] and James S. Gibson [*F.*] will be resumed at the next General Meeting, Monday, 9th January 1905, after the business of the election of members. The Papers will be taken separately in the order printed on foregoing pages.

The R.I.B.A. Form of Contract: Arbitration Clause.

Note needs to be taken of the decision of the Court of Appeal setting aside the judgment of Mr. Justice Farwell in the case of *Robins* v. *Goddard*,* where the construction to be placed on certain clauses of the Institute form of contract was in dispute. The facts of the case and the judgments of the Court of Appeal, which are fully reported in *The Times* of the 15th December, need only be very briefly noted here. The plaintiff, a builder, claimed a sum of money as due from the defendant, the building owner, upon the certificates of the defendant's architect pursuant to a contract between the plaintiff and defendant. The defendant denied liability, and alleged that the amounts certified were unreasonable and excessive, and that some of the work and materials was defective. The defendant further counter-claimed for damages for the plaintiff's alleged breaches of contract. The action had been brought upon the interim and final certificates of the architect. An application to the Master by the defendant for a stay of proceedings on the ground that the contract contained a submission to arbitration had been refused. At the trial Mr. Justice Farwell gave judgment for the plaintiff for the amount claimed, and held that there was no case on the counter-claim, the architect's certificate being in his judgment conclusive. The defendant appealed, and has been successful, his counter-claim being allowed. The Master of the Rolls said that but for Mr. Justice Farwell's decision he should have thought the case really unarguable. Mr. Justice Farwell, for some reason or another, had ignored the arbitration clause in the contract. The effect of that clause was to cut away the ground from beneath the plaintiff's contention that the defendant was barred by the architect's certificate from setting up that bad workmanship or materials had been introduced into the building. The matter was to be dealt with by the arbitrator as if no certificate had been given. The finality of the architect's certificate was revoked and destroyed by the arbitration clause. If a proper application had been made, the matter could have been referred to arbitration, as provided in the contract. That, however, was not done, so the ordinary jurisdiction of the Courts remained open, and the building owner had his ordinary legal remedies.—The action was referred to a referee to be agreed upon between the parties, instead of sending it to an official referee.

Street Architecture.

Mr. T. G. Jackson, R.A., in a Paper on "Street Architecture," read before the Applied Art Section of the Society of Arts on the 20th inst., said that the first principle he would lay down for town architecture was that there should be a consistency, a regard for the surroundings, an absence of vulgar rivalry in display; that ordinary houses should subordinate themselves to buildings which, from their public uses or their architectural importance, might fairly claim precedence; that there should be a comity of conduct in architecture as well as in society; and that any violation of it should be condemned by public opinion as in bad taste, inartistic, and intolerable. Another consideration that arose, especially when there was a question of cutting through old towns and forming new thoroughfares, was that, when the alteration approached or touched beautiful buildings, whether old or new, those alterations should be designed to fit the buildings and to bring out their beauties and enhance their architectural effect. With us this principle had rarely been thought of, and splendid opportunities had been missed, as, for instance, at Hyde Park Corner and Piccadilly Circus. Considerations of economy should not always be allowed to prevail over all other considerations. When unusual opportunities occurred of making a beautiful street, as, for instance, in the alterations of the Strand now in progress, it would be unworthy of a great capital to treat the matter solely from a commercial point of view. Something must be conceded to the dignity of a great city. A mistake made now from a too parsimonious motive would lay up a store of disgust and irritation in the future; and with such a mistake we were threatened in the case of the Strand between Wellington Street and the Law Courts. The new frontage lines as approved by the County Council signally failed to fit the lines of the churches of St. Mary and St. Clement and to bring out and enhance the architectural merits of those structures. The plan approved would have an accidental, haphazard character, with none of the dignity given by regularity, and it was one in which the very elements of true architectural treatment were not so much neglected as deliberately rejected. In no other capital in Europe would the economical question have been allowed to prevent so grand and important a scheme from being carried out in the best way possible. On such an occasion the Council could not fairly be accused of extravagance if it sacrificed something to those æsthetic considerations which had been brushed aside as if they carried their own condemnation with them. Another principle to be observed in altering or improving an old town should be that the general lines of the main streets ought to be respected whenever possible, and the general conformation of the plan as little altered as was consistent with public convenience. Considerations of convenience on the one hand and of beauty or sentiment on the other were seldom wholly irreconcilable. Streets were not, or should not be, mere mechanical contrivances for getting from point to point as speedily as possible. They had never been so regarded at any age but our own. One might almost say they were not so regarded now in any country but this. They should be beautiful and interesting, and so disposed as to show off their buildings to advantage and to preserve faithfully their historic traditions. In the case of a street entirely new from end to end, like Kingsway, many difficulties were absent. This was particularly so in the matter of scale. The buildings that lined Kingsway might be as large as they pleased. But in the case of the Strand this was not so. The proper scale was given there by the two churches and by Somerset House, and the new buildings must conform to that scale if they were not to spoil the picture. Unfortunately this was not likely to be a consideration with either the London County Council or the lessees of the new sites, if one might judge by the beginning that had been made. Perhaps it was not too late to induce the Council to fix a height for the Strand fronts properly proportioned to the scale of the old buildings which gave the Strand its peculiar charm. We did not want an "imposing effect," as the report of the Improvement Committee called it, on the north side of the Strand. Let the "imposing effects" be reserved for Aldwych and Kingsway; but even there it was to be hoped that megalomania would not be allowed to run riot. Perhaps the crucial difficulty of street architecture was the shop-window. To bring the new construction, consisting of two steel stanchions and a beam across, within the domain of art, it was only necessary that it should be visible. There was no reason why the stanchions and bressummers should not be treated architecturally, instead of, as now, being concealed, so that the building appeared to be supported on the edge of a plate glass shop-front. Until we made up our minds that, if we accepted the new mode of construction by iron, we must break definitely with the traditions of brick and stone there would be no hope for us. Never was there so much talk about the advancement of art. Art schools covered the country, and scholarships were showered on the students; but we should surely stultify ourselves if, when the time came for putting our pretended interest in art to the test, we chose the worse way of doing an important work instead of the better, from purely utilitarian motives.

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* The case in the Court below is reported in the first number of the *Architects' Law Reports* just issued and noticed on another page.

Old Roman London.

At the annual meeting of the London Topographical Society, on the 13th inst., Mr. F. G. Hilton Price, addressing the Society on the antiquities of Old London, referred to the little that remains to us of the City as it existed before the Great Fire of 1666. Not only have the substructures gone, but the foundations of the old buildings are being rapidly swept away. He expressed the hope that some one is keeping a watchful eye upon all excavations for the foundations of new buildings. These excavations have brought to light layers belonging to different times, and occasionally the Roman layer is found to go to a great depth. It varies, however, considerably in different parts of the City; between Eastcheap and Threadneedle Street the variation being from 15 to 26 feet. Mr. Hilton Price showed a number of objects of antiquity which had been unearthed at various periods, and which are now either in public museums or private collections. We owe the preservation of many of these objects to the Whitechapel coster collector, the late James Smith, who with his small cart used to visit every part of London where excavations were going on, and in this way became possessed of an enormous number of articles. A part of his collection he sold to the Guildhall, and another part to Mr. Hilton Price himself. In Lombard Street a Roman pavement has been found 12 feet from the surface, and at Foster Lane a pavement, glass, and pottery were found at a depth of 18 feet. Cannon Street was evidently a portion of London thickly populated by the Romans, for numerous articles have been found there. At the corner of Camomile Street a pavement was found 4 feet from the surface, while in Lombard Street Roman pavement has been found at various levels. Fine specimens of pavement have also been turned up in Leadenhall Street 12 feet from the surface, Lothbury at from 11 to 12·feet, and in Threadneedle Street, Broad Street, and Bucklersbury. Most of the principal Roman buildings appear to have been on the banks of the Wall Brook, the course of which stream has been traced by Mr. J. Price. Many interesting objects, including brass coins as bright as gold, have been discovered in the black mud of the Wall Brook. This stream seems to have formed the western boundary of the first London city, and Roman cemeteries have been found in Whitechapel, Spitalfields, and the

Minories. Later on the Roman city was considerably extended, as is evidenced by the discoveries at various times of pieces of the old Roman wells. Many bronze objects and statuettes have been dredged from the Thames, while a Roman pottery kiln was discovered in St. Paul's Churchyard. Just under London Bridge thousands of coins have been found, dredged up, according to Mr. Roach Smith, in chronological series, as if they had been deposited on the building or repairing of the bridge.

The Basilica of St. Mark.

With reference to the fears recently expressed for the safety of the Basilica of St. Mark, Signor Orlando, the Italian Minister of Public Instruction, stated in the Chamber of Deputies, a few days ago, that there is no immediate peril or any change in the already known condition of the church which should warrant alarm. The work of restoration requires the greatest care and judgment, and there is no reason to hurry the operations, which are steadily proceeding. The Italian Government will put no limits to the sum it is willing to give for the preservation of the Basilica. Signor Boni [*Hon. Corr. M.*], interviewed by a representative of the *Giornale d'Italia*, gives the assurance that "there is no imminent peril, but woe betide us if we do not take speedy and rational precautions. . . . For some time past," Signor Boni continues, "at Venice and elsewhere, restoration, with a few praiseworthy exceptions, has only served to mask the progress of decay. The use of modern materials and live cement has singularly favoured this process, as witness the work done in St. Mark's some ten years ago. In the belief that they were strengthening the building, a cover was put over the deformations, which have since continued, unseen, their work of destruction. In the case of St. Mark's, too, one must bear in mind the nature of the subsoil and the imperfect character of the foundations. The first builders of the Basilica, who knew their business perfectly, prepared as a foundation an edifice of a certain size and of certain material. Their rich and powerful descendants wished to invest the church with more sumptuous splendour; and thus grew its superstructure, its columns, marbles, and mosaics." Signor Boni added that happily there was in a vast structure like the Basilica always room for adjustment of weight, and there should be no immediate need for such drastic measures as would have been necessary had an attempt been made to save the Campanile.

Sixteenth Century Drawings of Roman Buildings.

The second volume of the Papers of the British School at Rome, just issued,* consists of reproductions in collotype of an important series of early sixteenth-century drawings preserved among the collections of the Soane Museum. These drawings, 168 in number, are attributed to Andreas Coner, priest of the diocese of Bamberg, who died at Rome in 1527. They consist for the most part of plans, elevations, and architectural details of various buildings in Rome, not only of the Classical period, but also of the Renaissance. The majority of them appear to have been executed before 1520, and are thus precious to us as records of remains of ancient edifices that have since entirely disappeared. Others that deal with contemporary buildings betray an intimate knowledge of the plans of Bramante for St. Peter's and the Vatican, and, it is stated, furnish entirely new evidence in regard to them. Nothing is known of the early history of these drawings. They were bought by Sir John Soane at Robert Adam's sale at Christie's in May 1818. The latter had probably acquired them from his brother James, who was in Rome in 1762, when he negotiated for George III. the purchase of the Cassiano dal Pozzo drawings (now in the Royal Library at Windsor) from Cardinal Alessandro Albani. The Introduction, Descriptive Commentary, and Appendices which accompany the Plates (170 in all) are by Mr. Thomas Ashby, jun., M.A., F.S.A., Assistant Director of the British School at Rome.

Professor Waldstein on Herculaneum.

Dr. Charles Waldstein, Slade Professor of Fine Art at Cambridge, at the Royal Academy, on the 13th inst., gave a lecture on "Herculaneum and the Proposed International Excavation." Sir E. J. Poynter, P.R.A., who presided, explained how it was that the excavations of Herculaneum, begun a century ago, had so long been suspended. This cessation arose from no want of enterprise, but from the practical physical difficulties and those of expense. The obstacles to complete excavation were, however, not insuperable, and Professor Waldstein had conceived the happy idea of making the work international, and that the scheme should take definite shape in England. Italy's co-operation had fortunately been secured.

Professor Waldstein pointed out that the excavations would not only have an immediate bearing on problems of history and on archæological questions, but would also be concerned with things of beauty and works of art. From Herculaneum many beautiful works may be expected. Prior to the calamity, Vesuvius—as we learn from Strabo—had lain dormant for many centuries. Thus the eruption was wholly unexpected, though in 63 A.D. there was a great earthquake. There were but sixteen years between the earthquake and the eruption. Everyone remembers Pliny the Younger's vivid description in his letter to Tacitus. The date was 24th August, in tho early afternoon, and the slow growth of what seemed a small cloud into the vast mass which buried the city is graphically described in Pliny's narrative. The effect of the eruption was widely different in the case of the two cities: Herculaneum was much nearer, and the city and district were soon overwhelmed with the molten mud. But it is not the impenetrably hard lava which it is commonly supposed to be. Geologists from Guy Lussac to Professor Hughes have shown that, apart from actual contact with air, the material is perfectly friable and manageable for the excavator. The beautiful works from the city which are to be seen at Naples show that the disaster has not been destructive of the beauty of the works of art at Herculaneum. Manuscripts which can be unrolled and read, as well as glass and marble, with no trace of fire on them, give good hope of what may be expected from thorough excavation. The catastrophe was sudden and terrible to the sufferers, but was a marvellous preservation of a provincial city's life at the moment of arrest. There were differences between the two cities. Herculaneum was distinctly Greek, whereas Pompeii was Oscan in character, and thus we have materials at hand which would not but for the disaster have survived as historical evidence of two lines of tradition. Herculaneum had been a centre of the higher intellectual life during the Roman supremacy. At Pompeii not a single manuscript has been found, whereas in one villa at Herculaneum were found 1,750. There, too, the finest works of art have been discovered, whereas those of Pompeii are of far inferior value and interest. The Fabii, Balbus-Agrippina, Piso, and other great Romans had their villas in the city. The library discovered is mainly composed of treatises on the Epicurean philosophy. Its owner was evidently a specialist. It may be that another of a more general character may be disclosed, and what treasures may we not expect—the lost books of Livy, perhaps—lost treatises of Aristotle, or plays of Sophocles? On no other spot could we expect so vivid a reproduction of an ancient city as at Herculaneum, whose treasures of the finest art were surpassed only, perhaps, by Athens itself.

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* The work may be obtained from Messrs. Macmillan & Co., Ltd. Copies are in the Institute Library, Reference and Loan.

Professor Waldstein said it had been the dream of his life that this investigation should be undertaken. His idea was that committees should be established in every civilised country to collect funds, and that there should be an international committee, with the King of Italy at the head. The approval of the King had been expressed, and the King of Italy, as well as his Prime Minister, promised support. The President of the United States, the President and Government of the French Republic, the German Emperor, the Emperor of Austria, and the King of Sweden encouraged the undertaking. Other nations might thus show their gratitude to Italy, for which alone the task was too heavy, and which had done and was doing so much for art in the world.

The late Francis W. Bedford [*F.*].

The death of Mr. Francis W. Bedford at the untimely age of thirty-eight, and within some twelve years of the commencement of his career as an architect, at the moment when his future looked most bright and promising, will be keenly regretted, not only by his personal friends—to them it comes as nothing short of a tragedy—but by all members of the profession in which he was so well known.

In him architecture loses a most able and accomplished artist, and one who, both by natural capacity and instinct as well as by education and training, was an architect in every sense of the word.

His executed works form a considerable list for the comparatively short time covered by his practice. Interesting and beautiful as these works are, and marked by a great refinement, grace, and reticence, they are yet insufficient to illustrate or do justice to the remarkable range of his abilities and powers. Perhaps this was known only to his intimate friends. It is safe to say, however—and the writer speaks from a personal knowledge of Mr. Bedford and his work of over fifteen years—that had he been spared, his enthusiasm for work, his keen artistic sense, his feeling for that elusive quality called style in design, his real knowledge of architecture, combined with the power to apply it in artistic form, would ultimately have placed him in the front rank of the architects of his time.

Mr. Bedford was articled in the year 1883 to Mr. William H. Thorp [*F.*], of Leeds, where he quickly began to develop unusual ability, particularly, Mr. Thorp says, towards the end of his pupilage. He afterwards came to London, where he entered the offices of Messrs. Ernest George and Peto, and soon became a distinguished student of the Institute, carrying off the Ashpitel Prize in 1890 and the Owen Jones Studentship in 1891. Always an enthusiastic hard worker, he naturally devoted many of his earlier days to travel. He spent a considerable time in Sicily, Italy, and Spain, producing, amongst his other work, a very fine series of water colours. Some of these were afterwards used to illustrate his article on "Colour in Architecture," published in the *Architectural Review* for May 1897. At Sir Aston Webb's last "At Home" at the Institute, they were amongst the most beautiful water-colour drawings in the room, and showed his conspicuous ability in that medium. Two in particular will be well remembered, viz. "The Lower Church of S. Francesco of Assisi" and the "Interior of S. Maria in Aracoli in Rome." These studies included some fine drawings of decoration and careful measured drawings of the Capella Palatina, Palermo, and of the ceiling of the Loggia del Papa at Siena, the latter drawing being to a very small and exacting scale.

All this study he afterwards turned to good account in his practice of architecture; the same delicacy of touch and refinement seen in his drawings is to be found in his realised works, and particularly in his decoration of domestic interiors. Mr. Kitson, his late partner, who writes most sympathetically and feelingly of the loss he has suffered, says that Mr. Bedford's best realised efforts are to be seen in this kind of work. He had a genius for making refined and well-proportioned rooms, with a distinctive individuality of their own, and was never so happy as when engaged upon such designs. The pleasant interiors of "Weetwood Croft," "Hillside," "Gledhow." "Braham," Perth, the interior of the hall of the "Red House," Chapel Allerton, Leeds (illustrated in the *Architectural Review* for November last), are all charming examples of his art. Amongst other of his executed buildings and of those he designed with Mr. Kitson are Maryland House, Leeds; "Pen-y-Bryn," Chapel Allerton, Leeds; "Dalguise," Harrogate; "Braham," a large house at Perth, for Mr. R. D. Pullar; "Webton Court," a large storehouse with half timber in its upper parts, the interior of which is another excellent example of his skill in decoration. During his practice in Leeds he won in competition the Leeds Public Dispensary (illustrated in the current issue of the *Architectural Review*), the Leeds School of Art (*Architectural Review* of May of this year), Dewsbury Road Free Library, and the Leeds Police Station. He also won the second premium in the recent open competition for the Newcastle Grammar School with a design remarkable alike for its skill in planning and for its admirably designed and beautifully drawn elevations, which won the highest praise from the Assessor (Mr. John Bilson), as being in these respects by far the best submitted in the competition.

Further work of his included houses at Headingley, Leeds; Shireoak Road, Leeds; Gymnasium at St. Peter's School, York; "Aros," Chapel Allerton, Leeds; house in Northill Road, Headingley, Shadwell Grange, near Leeds; decorations and alterations to St. James' Church, Leeds; branch banks at Middlesbrough (a large and important work), Hunslet, Ripon and York, most of which have been illustrated in *The Builder*. Other illustrations in the same journal of work by Mr. Bedford are Allhallows Vicarage, Leeds; "Red Court," Scarborough; Saint Aidan's Vicarage, Leeds. He also made additions to Con Manor, Wearwood, Leeds (originally built by Mr. E. S. Prior).

It was a privilege to have known Frank Bedford. He endeared himself to all his friends by a great personal charm of manner and by his quiet, unassuming ways. The Institute had every reason to be proud of such a member from his earliest student days to the present time, and his premature death is a very real and serious loss to it. All sympathy will be extended by every one of its members to Mrs. Bedford and her two little children in their sudden heavy sorrow and trial.

C. E. MALLOWS.

The late C. J. Ferguson [*A.*], F.S.A.

Charles John Ferguson, of Carlisle, whose death was announced at the general meeting of the 5th inst., had been an Associate of the Institute since 1864. He was the younger son of the late Mr. Joseph Ferguson, of Carlisle, and brother of the late Chancellor Ferguson. He was educated at Shrewsbury School, and was articled to the late Mr. Cory, of Carlisle, the county architect. On completing his articles he went for a time into the office of Sir Gilbert Scott. After spending some time in London, and making a tour on the Continent, he returned to Carlisle and went into partnership with Mr. Cory. He was associated with him in the building of the county hall and the enlargement of the hotel, in the addition of a new wing to the Cumberland infirmary, and in the erection of several churches and parsonage houses in the diocese, and also of a new church at Bournemouth. Early in the sixties he went into practice by himself, and was entrusted with the building, restoration or improvement of many of the churches in the diocese. St. Nicholas's, Whitehaven, and St. Aidan's, Carlisle, are examples of his original work. His skill in adapting new to old conditions, or in rebuilding on old foundations, is shown in such churches as Kirkhampton, Burghby-Sands, Dearham, Watermillock, Raughtonhead, Dalston, and others. A keen student of archæology, possessing both artistic taste and a genuine reverence for the old and historic, his services were often sought for in connection with the restoration or alteration of old buildings. He restored Bamborough Castle for the late Lord Armstrong, and made additions and alterations to Naworth Castle, Muncaster Castle, Edenhall, Kirklinton Hall, Woodside, Armathwaite Hall (Bassenthwaite) and Aberystwith College in North Wales. Among his buildings for secular and business purposes may be mentioned the Cumberland Union Bank and St. Martin's Hall at Brampton. For thirty years he was architect and surveyor to the Duke of Devonshire in the Carlisle district, and he was one of the diocesan surveyors under the Ecclesiastical Dilapidations Act. In his native city he was always eager to improve its æsthetic beauty and promote its interests. Among the schemes which he initiated was the conversion of Tulliehouse, the ancient residence of an old Carlisle family, into a public library, art gallery, and museum, an undertaking which originally cost about £25,000, and on which further sums have since been spent. He was a frequent contributor of papers on architectural and historical subjects to the "Transactions" of the Cumberland and Westmorland Archæological and Antiquarian Society.

NOTES, QUERIES, AND REPLIES.

REINFORCED CONCRETE.

From Wm. Dunn [*F.*],—

As I was unable to be present at the discussion on the 5th December, may I crave space to say a few words in regard to that discussion now?

It is a great pleasure to me to have contributed, in however small a degree, in bringing so interesting a subject before the Institute.

M. Mouchel, who also read a paper on the evening of the 21st ult., contributes to the discussion a note in which he says that his paper is a perfect reply to mine. I think he has misunderstood the nature and scope of my essay. As I say on page 44, I sought more to explain the scientific principles involved in the construction of reinforced concrete columns than to weigh the merits and demerits of the two chief methods of construction.

That the Hennebique, Boussiron, Wayss, and nearly all other systems, identical in principle, should adopt vertical bars with horizontal bindings, I regard as a strong point in favour of that method.

I think the plan lately introduced by M. Considère the more scientific use of the metal, but as I have said (also on page 44) there are other considerations which must weigh with us.

M. Mouchel tells us that the system he does not employ he can only regard as a toy; that its construction would be an impossibility in actual practice, and that no builder would consent to trust to such an arrangement for the support of a building (page 84).

But when we turn to the pages of the American press, we see illustrated therein buildings in which the spirally reinforced pillar is used.

He says that the spirally bound pillar I tested broke under a load of 126 tons per square foot (page 84). The first pillar I made was tested at the age of two months, and broke, not at 126 tons, but at nearly 180 tons per square foot (see fig. 9, page 37; and for Messrs. Kirkaldy's test sheet, see the Journal for 21st November 1904).

M. Mouchel tells us, if we wish to establish reliable laws, not to test to destruction samples of a few weeks or even a few months old (page 52). Well, fig. 9 gives the result of testing the same pillar at the age of 16 months. At that age it required nearly 280 tons per square foot to break it. This column had only 0·61 per cent. of metal in the longitudinal rods (see page 38).

The other column I tested required about 330 tons per square foot to break it. And may I now ask M. Mouchel to what pillar he refers?

He next refers to the test, made by M. Gary, of a column with 4 per cent. of vertical reinforcement, which broke at 160 tons, with the object of demonstrating the misleading and inaccurate nature of my diagram, fig. 9a. According to that diagram, what is known as the Hennebique formula gives 40 tons as a safe load, and the Christophe formula 30 tons—in the one case $\frac{1}{4}$ and the other rather more than $\frac{1}{5}$ of the breaking load. I think most architects and engineers would regard these as necessary factors of safety.

What *does* M. Mouchel mean? He would not propose that a column which broke at 160 tons should be loaded up to that amount; what, then, does he regard as a proper safe load? Is it more than 40 tons, or less than 40 tons?

He tells us that M. Hennebique and he have both failed to make tables which would facilitate the work of calculation. I do not think he of all others should resent the solution of this problem. The diagram is not patented. It was designed to aid architects in checking the work of the concrete specialists.

⁂ The following *errata* require to be noted in Mr. Dunn's Paper on "Reinforced Concrete":—

Page 29, Fig. 6, top right-hand square: *for* 3,294 *read* 13,294.

Page 86, first column: omit the quotation marks in lines 17, 21, and 23.

Page 40, in Fig. 9a, on dotted line marked 13″ × 13″=256 sq. in. *read* 13″ × 13″=169 sq. in.

From Monsieur Mouchel,—

My attention has been called to a query made by Mr. F. T. Reade, at the meeting of the Institute on the 5th inst., respecting the collapse of a reinforced concrete building at Santiago (page 96 of the Journal of the Royal Institute of British Architects).

Also to a similar query respecting the collapse of floors at Trenton, New Jersey, in December last—made by Mr. J. Sheppard, which floors had been constructed by the "Baltimore Ferro-Concrete Company" (page 97 of the same paper).

My answer is that the Santiago building had been constructed by a Mr. Pra, whose name we had never heard before the accident referred to.

Also that the "Baltimore Ferro-Concrete Company" are building on plans of their own, and that there is not the remotest connection between us and that Company.

From Charles F. Marsh, M.Inst.C.E.,—

I am sorry to say that I inadvertently made a misstatement in my remarks on 5th December. I stated that in Professor Talbot's experiments at Illinois University the loads were not removed and reapplied.

Since the discussion I have received a full description of these tests, and find that in some cases the loads were removed and reapplied.

The calculations for the position of the neutral axis did not, however, take into account the permanent sets in the concrete and reinforcement, and I find that the position is much nearer the upper surface when these permanent sets are taken into consideration.

From Mr. F. E. L. Harris [*A.*], of Manchester,—

Shortly after the introduction into this country, some few years ago, of the Hennebique system of armoured concrete construction, I had occasion to take up the question of its practical use in my work, and from that time to the present I have made use of it where I have considered it advantageous. I believe this entitles me to say that I have had more experience of its use than any other member of the Institute, and I am therefore justified in asking you to permit me to put on record, in the Journal, my views on the subject of ferro-concrete, as I was unable to be present at the discussion of the subject at the last meeting.

After listening to the reading of the Papers of Messrs. Mouchel and Dunn, I felt that, interesting as their remarks were, neither of the authors dealt with the matter of ferro-concrete construction from the point of view which would have been most useful to us as architects, who have the responsibility of advising our clients as to the best methods of construction to adopt for their specific needs, and I am afraid that, as a consequence, many architects will have been left with the feeling that the subject is one in which there is no necessity for them to take a practical interest. The question remaining for consideration is: Does this comparatively new system of construction offer advantages which under certain conditions entitle it to be set in the balance against ordinary building methods? If so, when and where might we reasonably advise its adoption?

My answer, based upon careful consideration and the result of its practical use, is, that for certain purposes, and under certain conditions, it is a material which will assist in solving some difficult problems, and will permit of some schemes being carried out which, in ordinary materials, would be almost impracticable, or would be prohibitive on account of cost.

It demands attention where one or all of the following conditions prevail:—

In cases of bad foundation.—Its monolithic character, the introduction of the "general cill," and the distribution of the weight of the superstructure evenly over the area of the site, doing away frequently with the need for special foundations, such as cylinders or piles. Also its comparative lightness, as against brickwork and stonework, making considerable difference in the dead weight laid upon the foundations.

In large structures of a plain character.—The work can be proceeded with rapidly, and be practically finished as it progresses. No steel girders, stanchions, or columns being required, vexatious delays on account of non-delivery are avoided.

The question of cost is naturally an important one. Experience has shown me that, given the foregoing conditions, a good staff of men under competent direction will produce a given work at considerably less cost than it could be executed at in the usual brick, stone, and steel construction.

For floors and columns, combined with brick or stone outer walls, the cost will compare favourably with that of well-known patent systems now in use, and will not be more costly than steel joists and common concrete filling, with cast-iron or steel columns.

There are several other aspects of the question which I fear I must leave to avoid extending these remarks to an undue length, but I might perhaps say that I am of opinion that there is no advantage over ordinary materials in ferro-concrete construction for buildings in city streets, where good foundations are available, excepting when it is desirable to take advantage of the considerable reduction in the thickness of walls obtainable by its use; nor is it desirable in domestic work or in elevations which need great architectural expression. Thin concrete walls, stucco-finished, will not, I feel sure, commend themselves to the majority of architects, and this would be the result if the ferro-concrete is economically used in façades.

From A. E. Spackman [*A.*],—

With reference to the above, the following may be of interest: A test of a Hennebique beam was carried out at Southampton, in the summer of 1902, by Messrs. Kirkaldy & Sons.

The beam was in three spans, each of 9 feet, with 12 inch bearings; was 23 inches deep by 12 inches wide, and had attached to it a section of floor 6 feet 3 inches wide by 8 inches deep at centre and $6\frac{1}{4}$ inches at the edges, the reinforcement consisting of 12 feet $1\frac{1}{2}$ inches diameter main rods with stirrups, and minor rods arranged on the Hennebique system; the concrete being composed of 5 parts of ballast to 1 part of cement.

The test was made sixteen weeks after the beam was made. The highest load reached was 143 tons deflection ·79 inches, rise of one of the side spans being ·13 and upwards; the deflection increasing without increase of load. Beam and floor bent till well cracked, and deflection about 4 inches.

The beam appeared to fail through the concrete crushing under the central load, the bearing area being small. When the outer skin of the beam was removed the concrete was found to be very solid and uniform, and well filled in round steelwork.

Three 6-inch cubes of concrete of the same mixing as used in the beam, and of the same age, crushed at 141·8 tons per square foot mean of the three.

The Architect and Ferro-concrete Construction.

From E. W. Hudson [*A.*],—

The few words I said at the discussion on the 5th instant were intended to express hearty recognition of the importance of the subject from an engineering point of view, and that I had been wondering where architecture came in, and suggested adjournment, if possible, that architects might be heard. What many, I feel sure, would like to know is, what our art-architects have to say in justification of the use of this material from an æsthetic point of view. It has come to stay, for its economy, strength, and sanitary advantages are undeniable, and I am sure architects will not be able, even if they would, to leave it to engineers altogether.

Now, should the architect, recognising that its arrival portends decadence, hold aloft the "Lamp of Truth," and cry "*Retro, Sathanas*"? Should he take the new comer by the hand and try to infuse into it vitality, honesty, and beauty?

If the latter action be possible, how can he best succeed in bringing it into line with canons of true taste, preventing at the same time any masquerading by it as of stonework, or similarly imitative pretence?

Mr. Perkins Pick's remarks indicate fear of a possibility of its use in such a way as would be detrimental to architecture; and I think many others will share this feeling.

M. Mouchel points to buildings abroad already erected to which no æsthetic objection can be taken. Grant, for the sake of argument, that the designs *per se* are all that could be wished for; but are not some—most of them—imitations of stone construction? Primarily, is not this æsthetically the foremost fault? It is not a necessity—it can be eliminated. Would not suggestions as to the artistic use of ferro-concrete form an admirable theme for future Papers by some of our leading men?

I have referred to the canons of true taste; but how far are we agreed upon the ideal? The hackneyed aphorism needs not to be quoted; but the truth of it was never more evident than in the world of our art.

Hence to some extent the public indifference. The creed of the past—not remote past—is now *anathema*. Ideals are changed. Mr. E. A. Hawkins, in the last number of the JOURNAL, advises another readjustment of them. I am sure any lowering of ideals is not advocated.

We have had for many years rules laid down that we used to have faith in, tabulated by a dead master; and, until as great a prophet of the new order gives us something better, I would like to quote a few, and put the questions: Do we believe them? Will they suffice in respect of ferro-concrete?

If the majority of architects believe and practise them, and I am wrong in believing that, although creeds may be modified, the ideals following have not changed, I shall rejoice at my conviction of error.

> "No direct falsity of assertion respecting the nature of material, or the quantity of labour."
>
> "No suggestion of a mode of structure or support other than the true one."
>
> "No deceptive representation of sculptured ornament upon surfaces."
>
> "No painting of surfaces to represent some other material than that of which they actually consist."
>
> "No use of cast or machine-made ornaments of any kind."
>
> "No introduction of members which profess to have a duty and have none."

How many, if any, of these dicta should regulate our dealing with ferro-concrete? We should not forget to be master of our rules, and in their application see that they do not master us, and that some exception is allowable *where it is not likely to deceive the observer.*

We of "the ordinary rank" may take the line of inquiry, and, avoiding dogma, are free to think out the question until a leader of men, feeling the true afflatus, speaks with convincing power.

Be it remembered, however, that the ruling principle, whatever be its nature, will not in its application be entirely confined to this material, but more or less affect others.

REVIEWS.

ARCHITECTS' LAW REPORTS.

The Architects' Law Reports (Illustrated). A series of Revised Reports of Cases decided in the Superior Courts, of importance to Architects, Surveyors, and others interested in the Construction and Maintenance of Buildings in London and the Provinces. Compiled by Arthur Crow, F.R.I.B.A. Legal Editor: A. F. Jenkin, Esq., Barrister-at-Law. Issued from 18, *Great Prescot Street, E. Price 5s., post free.*

The first volume of this publication will be welcomed by all architects whose practice brings them into contact with the legal side of their profession, which very few, probably, altogether escape. It puts together, in a convenient shape, the principal decisions of the past two years affecting buildings, and groups them under convenient headings, such as "Arbitrations," "Contracts," "Landlord and Tenant," "Light and other Easements," &c. The reports of the cases are accompanied, where necessary, by plans and photographs, which, as in the classic case of *Colls* v. *The Home and Colonial Stores*, aid the reader greatly in understanding the points under dispute. The "Legal Notes," which form a preface, bring out clearly the effect of each case, and show how it is distinguished from others nearly identical; and, at the end, there is a digest of the cases, which shows the purports of the decision in a convenient form. There are full and complete indices, arranged so that the cases can be found by name, subject, or date, and the "Accumulating Subject Index" will carry the reader through successive volumes, and enable him to trace any case at once, by looking at the index in the latest number.

As an instance of the "glorious uncertainty" of the law (for which Messrs. Crow and Jenkin cannot be blamed) we may note that the case of *Robins* v. *Goddard* decided last June, occupies seven columns, and is most interesting reading. Last week, however, the decision was reversed, and it will take seven columns more in the next volume to explain why.

There are one or two suggestions that the editors might consider when preparing their next issue: (1) the omission of such matter as Mr. Belcher's and Mr. Guy Dawber's addresses, and the proposals for amending the London Building Act. A book of this kind should be as concise as possible, and should deal solely with its subject. (2) The effect of the decision should be clearly noted at the end of each case, and the winning party should be mentioned by name. It is not always easy, especially in appeals, to see which has won. The Judges are content to say "the appeal is dismissed," and it takes some close reading to find what this means. (3) If it were possible, one would greatly like to know the amount of the taxed costs on either side. Their publication would, one hopes, induce a chastened and humble spirit, not averse to compromise. (4) In the Subject Index, the page reference should be put on the right, and not in the middle, and should be given under the Chronological as well as the Alphabetical heading. (5) The wide margins might be reduced so as to make the book smaller. (6) A few foils or blank pages would be useful for inserting cases noted by the purchaser during each year.

In conclusion, the editors are to be congratulated on their enterprise, and they should have the good wishes of the profession which they seek to serve.

R. Langton Cole.

MINUTES. IV.

At the Fourth General Meeting (Ordinary) of the Session 1904-05 held Monday, 19th December 1904, at 8 p.m.—Present, Mr. John Belcher, A.R.A., *President*, in the Chair, 37 Fellows (including 14 members of the Council), 32 Associates (including 2 members of the Council), and visitors—the Minutes of the Business and Ordinary Meetings held 5th December 1904 [p. 116] were taken as read and signed as correct.

The following members attending for the first time since their election were formally admitted by the President—viz. John Burland Chubb, *Fellow*; Ernest Bates, Archibald Neil Campbell, Henry Percy Gordon, and John Stevens Lee, *Associates*.

The following candidates for Fellowship, found by the Council to be qualified for membership according to the Charter and By-laws, were recommended for election:—viz. Charles Henry Brodie [*A.*], George Alfred Humphreys, A.R.C.A., William Thomas Lockwood, Alfred Every Powles, Percy Tom Runton, Ernest Richard Eckett Sutton.

Mr. Lacy W. Ridge [*F.*] having read a Paper on Building By-Laws specially in Rural Districts, and Mr. James S. Gibson [*F.*] a Paper on Architectural Design and the London Building Act, a discussion ensued, and a vote of thanks was passed to the authors by acclamation, further discussion being adjourned to the meeting of the 9th January 1905.

ALLIED SOCIETIES.

BIRMINGHAM ARCHITECTURAL ASSOCIATION.

Presidential Address, Session 1904-5.

By Thomas Cooper [*F.*].

Gentlemen,—My first words to the members of the Birmingham Architectural Association this evening must be an expression of my deep sense of the honour you have conferred upon me in electing me as your President for the Session now begun. This is an honour I regard as emphasised by the fact of my being still a comparative stranger among you, although nearly seven years have passed away since my name was added to the roll of Birmingham Architects. The honour is, however, accompanied by responsibilities to which I am fully alive, and, in facing them, I cannot but feel that my inevitable shortcomings will be the more in evidence by reason of the able and tactful manner in which the duties of the office have been conducted by my immediate predecessors, Mr. Harrison and Mr. Bidlake; I shall, therefore, have to ask for your kind indulgence in respect of my incapacities, and your support in the efforts I shall make to further the interests of our Association, both locally and in its relation to kindred societies, and to the Royal Institute to which we are affiliated.

REGISTRATION OF ARCHITECTS.

There are, as most of you are doubtless aware, questions of the first importance to be brought forward by the Institute during the ensuing session—questions that vitally affect the well-being of the profession as a whole—and it is worthy of record that two of the thirty-eight members of the Institute Council will directly represent your Association in the persons of your past president, Mr. Bidlake, and your present president. Speaking as a loyal upholder of the Institute, I view with very great concern the possible secession from its ranks that has been threatened by some of its eminent members should the Registrationist party obtain the upper hand and succeed in carrying a majority with them. Though I am myself an ardent advocate of Registration, I should still consider a victory for that cause too dearly purchased if it necessarily entailed a serious disruption of *the* representative body of the profession.

So much has been written and so much said on this burning question that it is hopeless to do more than recapitulate the several *pros* and *cons* in connection with the subject; but I think that on the eve of the contest it is well for this to be done, and for each one of us to form his opinion and be able to give good reasons for the faith that is in him. It is a question which very specially concerns the younger members of our body, who, whatever might be their ultimate gain by the closing up of the ranks of their profession and the exclusion from it of the incapable and unworthy, may nevertheless shrink from the compulsory ordeal of such a qualifying examination as should be sufficiently severe to ensure that exclusion, and to very appreciably raise in every way the status of the architect.

THE EXAMINATION TEST.

It is around this question of examination that the battle rages—can examination be made an efficient test of the essential qualifications of the architect? So many men whose names are household words with us, and whose talents we so greatly admire and respect, give such a decided negative to this question that we cannot but pause—those of us who hold contrary views. We are met principally by the contention that it is our artistic powers and instincts that cannot be gauged by any qualifying test, but, if such a test is impossible, surely it is equally impossible to argue about what is art and what is not, or to lay down any principles at all as to art. We are told that there can be no test for that imaginative side of our profession which is so necessary for the evolution of good design, that it is a subtle essence evading all attempts to apply a measure to it. But cannot imagination be perverted, can we not imagine a vain thing, cannot imagination run riot, call down upon itself honest criticism, and be subject to examination, using that term in a broad sense; or is imagination to stand on an unassailable height, subject to no laws but those of its own making?

The anti-examinationists are generally willing to allow that the constructive side of our art is quite within the legitimate scope of an examination test. Now we find writers on the Art of architecture involve themselves in masses of high-flown verbiage through which it is often idle to follow them—laying down principles which they are frequently the first to set aside when they find it convenient so to do. There is perhaps no principle so often insisted upon as an axiom, and as frequently violated by the art theorist, as this: all good architecture must spring from a basis of sound construction, all good architectural ornamental detail must be the decorative treatment of the legitimate and essential constructive members of the building. I believe we all feel the general truth of this principle, and yet how few of us consistently and honestly carry it out in practice, and how little does the art theorist realise his own self-contradiction when he contemptuously limits the scope of the possibilities of examination to construction, forgetting that, after all, that is the broad foundation of the art, whatever may be the possibilities of its superstructure.

Now it seems to me that all architectural design centres itself upon construction—using that word in its very broadest sense—that is to say, including in it all the science of planning—horizontal and vertical planning, if I may so express myself—and at no period in the evolution of the design of a building should one be able to say—up to this point comes the plan, the construction, now let us apply the art.

No, the art should begin with the earliest stages of the planning, advance side by side with it, be throughout interwoven with it, and, in the result, become characterised by that fitness, proportion, and inseparableness from the scheme of the building without which there can be no architectural beauty. But, in the gradual progress of a building's inception, it is the plan, the construction, that must lead the way; art must be a dainty maiden tripping alongside, a graceful companion, not a virile leader, none the less but all the more fascinating because she must attune her steps to a measure that is set for her. And construction being necessarily the masculine element in this combination, so essential in good architecture, it follows that little real progress will be made in architecture that is not dependent upon the lead of construction.

Consider the way in which the older styles rose into being—starting from the simple elements of column, lintel, arch, and vault—varying with all the changing conditions under which these elements were employed, growing in health and vigour so long as these elements were predominant, and decaying when they became overlaid with entangling masses of redundant decoration. Purity of style everywhere followed the constructive lines.

For ages architecture, like a clear deep stream, followed a well-marked course; but in these latter days the stream has spread out over so large an expanse of mud flats that it is only here and there we find any indication of a channel at all, and difficult indeed is it to discover any undefiled remnant of the original head waters.

Will the scattered stream ever gather itself together again, and once more flow on with its old power? We all hope so, but he would be an optimist indeed who could predict such a result in the near future, under the existing social and economic conditions which so largely influence and dominate our architecture. It is not the vitality of the architectural seed we have to fear so much as the barrenness of the soil in which it is compelled to grow. Architecture is by no means an altogether lost art, and there is a sufficiency of the true artistic spirit to be found could it only meet with a suitable environment to aid in its growth. But in these days all the conditions seem adverse. The increase of luxury and the almost universal indulgence in ostentatious display have necessarily led to the cheap and nasty and vulgarly pretentious erections of the jerry-builder.

Machinery and the development of new processes in all trades have helped him by providing him with an ever ready-to-hand supply of cheap stamped and cast ornaments in all his various materials.

The rise and rapid progress of the railway system have given birth to an age of iron and steel, and, in meeting the various constructive problems that this has demanded, a new and specialised class of constructors has come into being—the engineers—a class with whom beauty in building is as unsought and uncared for as it is unknown, but whose constructive talents have made them indispensable in this utilitarian age.

Again, the circumstances attending upon our life in large towns, overhung by palls of coal smoke, militate in many ways against our modern architecture, demanding large areas of window space that destroy the breadth and repose of our our façades, and preventing all possibility of colour charm by the hideous deposit of sooty crust with which in a few years every new building becomes covered.

Then there is the frenzied striving among us for originality, combined with the bewildering profusion of materials at our command. The easy methods of transit facilitate the bringing of these materials to all places from all parts, and this naturally tends to the entire obliteration of every local tradition and characteristic in building, and to the stereotyping of the commonplace. Once more—we are in possession of the not altogether unmixed benefit of having ready to hand endless records of all the styles of all times in all countries. In this respect we are in the position of a child with a big box of paints. Overwhelmed by the variety of tints at his disposal, and attempting meaningless mixtures, his results are daubs devoid of all purity of colour.

Pampered heirs of all the ages, it is reserved for us in these latter days to combine in one building—nay, in one room—a dozen different and discordant periods of the arts of the East and of the West. In the same house we may have our Romanesque entrance, our Elizabethan hall, Louis Quinze drawing-room, a Queen Anne dining-room, Turkish smoking-room, and Japanese boudoir, &c., &c., *ad nauseam*—with furnishings arranged in the inverse order for the sake of variety.

Out of all this chaos that characterises the present time, what is to be the nature of the change that will so radically revolutionise all the depressing conditions around us as to restore architecture to its former proud position of a living art, and by whom is the change to be effected?

It must necessarily rest with us architects to take a leading part in it. It is to that end—to the general advancement of architecture—that we must address ourselves. We are, however, at the outset of our struggles after the methods of attaining this ideal, confronted by the sharp divergencies of opinion that now exist among us with reference to the all-important questions of architectural education, and the desirability or otherwise of a qualifying test for admission to our ranks. Striving for a common cause, we are fighting amongst ourselves as to who shall wear the uniform and who shall not. There are those who are of opinion that everything is to be gained by a sort of guerilla warfare, by each one preserving his own freedom of action independent of the rest, while others hold that united action will be for the benefit of all.

"ARCHITECTURE—A PROFESSION OR AN ART."

It is now about twelve years since a very remarkable series of essays by many well-known men was edited by two of their number—Mr. Norman Shaw, R.A., and Mr. T. G. Jackson, A.R.A.—and collected under one cover with the title: "Architecture—a Profession or an Art." The immediate object of this publication was the promulgation of very strongly expressed opinions adverse to a diploma, which the essayists, one and all, regarded as being opposed to the interests of architecture as a fine art. I believe that all that can fairly be said, and much more than can be said fairly on their side of the question, finds itself recorded in this book, which, however ably written it may be, and undoubtedly is, is nevertheless sadly marred by a spirit of Pharisaism that detracts from the eloquent special pleading of its talented authors, and by the all too evident desire to depreciate the Institute at any cost. This book I specially mention, as it may be unknown to our younger members. It may be regarded as the Bible of the anti-examinationists and anti-registrationists. Whatever our own feelings may be upon what is to us the question of the day, we cannot but heartily admire the intensity of the enthusiasm for architecture as a fine art that pervades the whole volume from beginning to end, and the great force of the several pleadings.

I think I may feel fairly sure that, with most of the members of this Association, affiliated as it is to the Institute, the Institute needs no defence; I think we may all be agreed upon the point that the existence of an influential body who shall represent and, so far as in it lies, safeguard and advance the general interests of architects and their calling—be it a profession or an art, or both combined—is a highly desirable thing. Acting on those lines, it is akin to the ancient Guilds. And I cannot help thinking that the influence of the essayists and their immediate supporters might have been more effectively, beneficially, and judiciously exerted from within than from outside the Institute.

As it is, the book serves to show that, whatever definition of an architect may be formed by the special object of their attack—the Institute—the collective opinions of the essayists upon the point are, at any rate, somewhat discordant. They are united only in detraction and in an illiberal and none too courteous criticism of their opponents.

As instances of the extreme views held up for our adoption I may make one or two quotations.

A well-known A.R.A. painter, contributing one of the essays, writes as follows: "The artist who can delineate the beauty of the human form, who is scientifically conversant with its structure as a machine, is possessed of a power limitless as art itself. He can design a picture, make a statue, or *build a cathedral.*" Mark the last three words—which are those that specially appeal to us—in what way I will leave you to judge, knowing what we do of the usual run of painters' architecture when represented pictorially in their own works. To me such a statement seems the utmost profundity of humour—I was going to use another word, but in these days of libel it would be unwise—and this in spite of the after-assertion of the author that, startling as his dictum may be, it has been proved over and over again to be a true one. There may, no doubt, be exceptionally a sculptor-architect like Brunelleschi, a Michael Angelo, or, to come to our own time, a painter-archæologist like Alma-Tadema; but to make such a statement a general one is high-flying indeed.

It is gratifying to find that so great an artist as Mr. Norman Shaw can scarcely be classed with the ultra-extremists amongst this group of essayists, some of whom go so far as to altogether abolish the "architect" in the sense that most of us understand the title.

For we find Mr. Shaw, in spite of his ardent desire that an architect should be altogether an architect in the true meaning of the term—that is to say, one whose great mission is to *build beautifully*—is, nevertheless, bound to concede this point in favour of the professional view—and here I give his own words—"that an architect is an agent, that, though he is employed and paid by his client, he has duties to discharge to the builder who is working under him, no less important than those he owes to his employer; should he allow bad workmanship to pass, or should he allow the builder to fail in carrying out any part of his contract, he becomes personally responsible to his client. On the other hand, he has to control his client's demands; it is his duty to interpret the specification, and to see that no injustice is done on either side." So far Mr. Shaw. Now, surely all this is scarcely compatible with the idea that is generally claimed by the essayists that the practice of architecture should be as unfettered in its scope as the arts of sculpture and painting. For those two arts have practically none of the limitations just mentioned, although, as we heard from Mr. Gilbert when, recently, our Association had the privilege of visiting his studio at Bruges, the sculptor may have his own little difficulties to contend with, such as when, after agreeing to supply a work of statuary in bronze for a certain fixed sum, he finds he has underestimated the amount required of that costly material to the tune of a couple of thousand pounds or more. I think we must inevitably take account of what modern developments have done for the architect in saddling him under the contract system with the combined duties of a lawyer, a contractor, an expert constructor, a designer prepared to meet all the manifold necessities and emergencies that the complex nature of the conditions he has to satisfy is ever bringing before him.

But, no! the essayists say that we have by-laws, with city surveyors and sanitary inspectors to act as "building policemen" in looking after matters of public health and safety, that we have the quantity surveyor to relieve us of the unpleasant humdrum of arranging for contracts and settling-up after their completion, and the engineer to act as a pioneer of advanced construction. It remains for us to pursue with undivided attention the cult of the beautiful. But, lest we should not find sufficient field for our imaginings within our own special domain, it is proposed that we should endeavour to enlarge it by the inclusion of sculpture and painting. Surely this is somewhat of the vaulting ambition that o'erleaps itself—this addition of two other arts, to practise either of which successfully is the work of a lifetime. Then, again, we are exhorted to remember that the office is not the fitting place for us, but the workshop, where we should be the "master-craftsmen." What would our trades unions have to say to this aspiration, to the presence of one amongst them whose mission it would be to show them, one and all, how to practise every detail of the particular craft of each of them, no matter what it might be, amongst the thousand and one technicalities of these latter days?

And, lastly, we are warned that we cannot hope by any amount of perseverance, industry, and education to acquire the artistic instinct, that it is not a measurable quantity admitting of analysis and examination. Mr. William H. White, the late Secretary to the R.I.B.A., makes an amusing quotation with reference to this in an able pamphlet entitled "The Architect and his Artists." He first of all alludes to the question put (according to *La Vie Parisienne*) to a little gentleman in a cocked hat and a blue uniform: "How is it, sir, that Switzerland, which is not a maritime Power, possesses an admiral?" "C'est de naissance," replied the little man. It was by birth that the Swiss admiral held his title and uniform, and he passed them both on to his descendants. Mr. White goes on to say that the rulers of the Æsthetic School have doubtless acquired their artistic qualities in an equally easy and direct fashion, for, if their statements are worth anything, the new architecture (realising the words of Samuel Butler) is

> "A liberal art that needs no pains
> Of study, industry, or of brains."

Despite all our sympathy with the many truths and the lofty ideals that are so eloquently held forth in the work of the essayists that I have been alluding to, in spite of all our desire for a return to such mediæval systems as gave us the marvellous artistic growth which we are still harvesting, and, with all our respect for the nobility of the sentiments of following art for art's sake, of a common brotherhood of the arts, and so on, we cannot but feel that they are in great measure at the present time merely day dreams, and that vast reforms, social and economic, have to be carried out before there can be much advance in the directions pointed out.

ARCHITECTURAL EDUCATION.

And we now come, therefore, to what we are to do to help on the movement. I believe I may say that there are even now indications of the possibility of a common basis for agreement being arrived at by the union of both parties in a united effort to formulate a scheme for architectural education, an education that may foster the artistic instincts, while it does not lose sight of the many-sighted responsibilities that crowd in upon the architect in the carrying out of the multifarious duties that modern custom has allotted to him. Indeed, if these last are to be thrown overboard, there seems to me a great danger of the architect being specialised out of existence altogether.

And should the possibility of a union of parties grow, it may so happen that both sides may be led to forgive and forget the somewhat acrimonious recriminations that have issued from each other's mouths.

The one side may be led to realise that, while the advocates of examination and even registration do not think they can by such means ensure a uniform high level of architecture, they do aim at a levelling up of the low-lying strata of the craft. Doing that does not, however (be it said in parenthesis), prevent the elevated peaks from still towering aloft in their unapproachable artistic purity. And, moreover, such advocates of examination and registration are strongly of opinion that there should be no undue handicapping in the architect's struggle for existence by allowing the unworthy and the entirely untrained to rank with those to whom long years of specially directed education have, at any rate, given a first claim to that patronage of the public without which architecture cannot exist.

The other side may, in its turn, fully recognise the essential truths and loftiness of the artistic ideals of their quondam opponents, and strive in every feasible way to carry those ideals to fruition and to the eventual sowing of a seed that in years to come may revive the ancient glories of our noble art.

And then, with a higher average level of attainment by our own body, it cannot but follow that the public, in becoming accustomed to a more elevated standard, will itself be gradually led to expect and demand its general maintenance. I am quite sure it is not the isolated works of a few great leaders in the art that will, in the long run, have such a beneficial influence in the spread of good architecture as the general diffusion of a healthier tone amongst the rank and file of the craft.

And just as the underlying principles upon which the sound government and freedom of our country are based owe their development more often to the united power and will of the masses than to the controlling influence of the classes—so, I think, the great hope for the future of Architecture is that there shall be an irresistible impulse in the right direction imparted from below.

This can only come about through an education that will unite in one common language all the various crafts that contribute to our complex art, which, at present, is a Babel of many tongues.

How this education is to be arrived at is the problem of the present awaiting the solution of the future.

The important question of Building By-laws is one that affects both the constructive and the artistic side of architecture.

THE NEW YORK BUILDING CODE.

It is now having a considerable amount of attention given to it with the object of clearing away the obstructive non-progressive clauses which characterise our Building Codes.

Within a very recent period two of the great cities of the world have completely reorganised their building regulations—New York and Paris—and, I think, a few words on these may not be altogether *mal à propos* at the present moment. Through the kindness of an American architect I have obtained a copy of the New York Building Code—an enactment of the most comprehensive description, containing many important provisions which find no place in our own regulations. So comprehensive indeed is this Act that it forms a bulky volume that is almost a treatise on building construction. Lest you should be tempted to think, however, that it must consequently contain many microscopical regulations of a narrow and hampering description, I will hasten to quote the second clause of the Code—which embodies what *should be* the spirit pervading *all* building regulations. The Clause in question says, "This ordinance is hereby declared to be remedial, and is to be construed liberally"—mark this—construed liberally, "to secure the beneficial interests and purposes thereof." Now I venture to think that is a most excellent prelude—and a most necessary one, too, when one considers the far-reaching scope of the Act.

For the next clause dictates that no wall, structure, building or *any part thereof* shall hereafter be built or constructed, nor shall the plumbing or drainage of any building, structure, or premises be constructed or *altered* except in conformity with its provisions.

Nor shall any building already erected be raised, altered, moved or built upon in any way that would violate any of the provisions of the Code.

The preliminary requirements with regard to any new or altered construction (whether of a building or any parts of a building such as plumbing or drainage) are very stringent. The documents to be submitted (for which I hope proportionate charges can be made by architects) are numerous, and consist of, first, a detailed statement in triplicate of the specifications on forms supplied by the Department of Buildings. Second, a full and complete copy of the plans and such structural detail drawings as may be demanded. Third, these are to be accompanied by a sworn statement, any false swearing in which on a material point is deemed perjury, and is punishable as such.

Although ordinary repairs may be made without notice, such repairs are very limited—as they must not include the cutting away or removal of any portion of any stone or brick wall, of any beams or supports; or the removal, change or closing of any staircase; or the alteration of any part of a drainage system or the construction of any soil or waste pipe. The Act carefully describes the required quality of bricks, sand, mortar, cement, concrete, timber, iron and steel, and then goes on to deal with a question which often gives us so much trouble in Birmingham—that of foundations in their relation to neighbouring properties and the rights of adjoining owners.

The New York law—similarly to the London Building Act—very properly relieves the building owner from undue responsibility caused by the passive or active obstructionist rights of the adjoining owner, and it does it in this way:—

If the building owner carries his excavations no deeper than 10 feet below the street kerb, the adjoining owner has to protect and support his own walls by sufficient foundations, and in order to be able to do this he is permitted, when it is necessary, to enter upon the premises where the excavation is being made.

But if the excavation is deeper than 10 feet, the building owner is required at his own expense to properly support and make the adjoining owner's foundations safe (whether they be at a depth of less or more than 10 feet) so long as he is permitted to enter upon the adjoining land, but not otherwise. If such permission be refused it behoves the adjoining owner to do all that is necessary to safeguard and support his walls in such a way as to allow the adjoining excavations to be made. In the case of a party wall, if it is in good condition and sufficient for the purpose of the adjoining building, the building owner is bound to defray the whole cost of underpinning if his excavations demand it.

As regards loads allowable on foundations, tests of the bearing power of the soil may be demanded by the authorities if a doubt exists. These tests are filed in the Department of Buildings, and, presumably, form valuable records.

Ordinarily, the following loads are to be taken:—

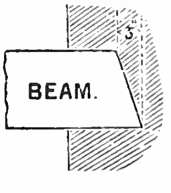
On soft clay, 1 ton per square foot.
Ordinary clay and sand in layers wet and springy, 2 tons.
Loam clay or fine sand, firm and dry, 3 tons.
Very firm coarse sand; stiff gravel or hard clay, 4 tons, or as otherwise determined by the authority.

The method of calculating both the live and the dead loads on foundations is carefully laid down in the Act, and varies with the class of building, as regards the live load, from 100 per cent. to 60 per cent. of the total. The calculation for live loads also varies with the class of building, from 60 lb. per super. foot on the floors of dwellings, 75 lb. on school floors, and 90 lb. in places of public assembly, to *minima* of 120 and 150 lb. respectively for light and heavy storage buildings, and special extra loads for factories and such like in proportion to the degree of vibration liable to be caused by the machinery.

No foundations are to be less than 4 feet below ground, and, where solid earth or rock is not found, piles are required, as to which sizes are specified, and a formula given for the sustaining power of piles *not* driven to refusal.

It is the custom with our English by-laws to disallow the reckoning in of concrete as part of the footings, and, with us, the lateral spread allowable for footings is unduly great—a spread of 4½ inches in a height of 3 inches being undoubtedly an absurd proportion. In New York more sensible views obtain on these points. The foundation may be altogether of concrete, with a minimum thickness of 12 inches, and a minimum spread of 6 inches on each side of the base of the wall, except in cases of small structures and piers with light loads, when a reduction may be allowed at the discretion of the Commissioner of Buildings. In stepped-up foundations of brick the offsets (if in single courses) are not to exceed 1½ inch as compared with our 2¼ inches, or 3 inches if laid in double courses. It may here be noted that the American bricks seem to be narrower than ours, wall thicknesses being everywhere spoken of as being in multiples of 4 inches, such as 8 inches, 12 inches, &c. (but then, of course, we English rejoice in a vulgar fraction for our standard measures). Our own hard and fast rule for the total width of footings being double that of the wall above gives place in New York to the more rational provision that the foundation shall be in all cases of sufficient thickness and area to safely bear the weight put upon it, and the numerous clauses in the New York by-laws relating to grillage foundations of iron and steel, to foundations of stone, to isolated pier foundations, and so on, although very comprehensive and abounding in limitations—from the jerry-builder's point of view—are nevertheless sufficiently elastic to admit of plenty of scope for the enlightened constructor, especially when interpreted in the liberal spirit which the Act dictates.

We find some excellent provisions with regard to the piers and walls of the superstructure. For instance, all brick piers with a superficial area of less than 9 feet supporting a beam girder or column in which a wall rests shall have bond stones or cast-iron plates of the full area of the pier at intervals of not less than 2 ft. 6 in. in height, and isolated brick piers are not to exceed in height ten times their least dimension. Stone facing is not allowed to count as part of the thickness of a wall, unless bonded into the backing, and at least 8 inches thick. Foundation walls, isolated piers, parapet walls, and chimneys above the roofs, have to be built in cement mortar. I find sundry regulations, the intent of which is not altogether obvious. For instance, it is required that the ends of all wood floor and roof beams where they rest on brick walls shall be cut to a level of 3 inches in their depth, thus—perhaps some of you can throw light upon the meaning of this. I can only imagine that it is meant to prevent the *sagging* of the beam, or, in case of a fire, with a long length of beam burnt away in the middle, to prevent the *leverage* of the beam exercising any undue pressure on the wall by virtue of such leverage. It certainly is not intended to give ventilation to the end of the beam, as the illustrating diagrams all show the splayed end in close contact with the walling for the whole of its depth. Then, again, it seems somewhat contrary to our notions when we find that an oak beam is considered less strong than one of yellow pine of the same size in the proportion of six to seven. This probably is due to a very great inferiority in the quality of the American oak. Yet another difference from our custom lies in the fact of New York prohibiting the use of parging mortar on the inside of any fireplace, chimney, or flue, and in demanding the lining of all ordinary flues with cast-iron or well-burnt clay or terra-cotta pipes.



All skylights of more than 9 square feet in area are required to be in iron, and all skylights of public buildings or over passage ways, or rooms of public resort, must have either wired glass or a wire netting below the glass.

The control exercised by the authorities with regard to loads on floors is very complete.

They can compel the redistribution or lightening of the load where deemed necessary, and they require, both for old and new buildings of the warehouse and factory class, an estimate to be made, filed, and sworn to, of the strength of each floor, with a specification of sizes and spans of supports and beams, and a copy posted in a conspicuous place on each story or varying parts of a story, in all such buildings. An official examination can be made if there be any reason for doubting the accuracy, and the cost of such examination can be recovered in the event of the floors proving to be insufficiently strong. This examination, however, is dispensed with if the architect has filed (with his application to build) the data required to determine the strength of the floorings—such data being filled in on one of the blank forms provided for the purpose, and the form holding good so long as the purposes and uses of the building remain unchanged.

The allowable loads on walling certainly do not err in the direction of being too small. Brickwork, for instance, when lime mortar is used, may take 8 tons; when the mortar is of lime and cement mixed $11\frac{1}{2}$ tons, and when only of cement 15 tons per super. foot. The safe loads for rubble stonework are given as 10 tons with Portland cement, 7 tons with lime and cement, and 5 tons with lime mortar only.

Concrete may be loaded with 15 tons per super. foot when Portland cement is used, and 8 tons with cement of any other description.

A cube foot of brickwork is taken as weighing 115 lb., and stone, marble, or granite, 170 lb. The Act goes on to specify in great detail factors of safety for various materials, and to give the fullest data for the strength of columns, for working stresses of all kinds of materials, &c.

Very strict rules obtain with regard to plumbing and plumbers. Master plumbers are compelled to register yearly, and will not be granted a certificate of registration unless they hold at the time a certificate of competency from the Examining Board of Plumbers of the city. The registration may be cancelled for violation of the rules laid down for plumbing and drainage, or whenever the registered person ceases to be a master or employing plumber.

It is unlawful to carry on a business as a master plumber without registering, and there are heavy penalties for the disregard of the law after an order of restraint has been made by the Court ruling such cases. Penalties of 50 dollars for each offence are incurred by any architect, builder, plumber, carpenter, or mason who may be employed or assist in the commission of any violation of the Building Code, and the penalty is increased to 100 dollars if the offence is connected with the construction of chimneys, flues, etc., or with framing or trimming of timbers, girders, or other woodwork in proximity to chimney flues or fireplaces. These penalties are, however, remitted if the violation is removed within 10 days after notice is served; on the other hand, they are increased to 250 dollars if such notice is disregarded.

Careful provision is made for the authorities having power to sanction any departures from the strict letter of the Act where there are practical difficulties in the way of carrying them out—so long as the *spirit* of the law is observed and public safety secured.

So much for the by-laws of New York, which, though characterised by an extreme amount of detail in their ordinances, nevertheless appear to endeavour to leave the way open to any individual requirements and to new methods that are consistent with the true intent of the Act in being for the public welfare.

THE NEW PARIS BUILDING REGULATIONS.

In the new building regulations of the city of Paris, dating from 1902, we find a leading motive which does not appear in those of New York, viz., the desire to liberate architects and builders from the limitations of the previously existing decree which tended to enforce a depressing uniformity upon all buildings subject to it. Of course these limitations were chiefly connected with heights and projections, and the principles adopted in framing the new statute are worthy of record as furnishing a good model for imitation here and elsewhere.

They are as follows:—

The projections allowable in front of the building line should be proportional to the width of the streets, and such projections should be enclosed within very simple lines, within which full liberty is allowable without a particular projection being specified for a particular ornamentation within such limits.

The new decree should favour the development of the skyline by authorising new and important projections on the ornamental part of the roofs. It should encourage and regulate corbelling, which was previously prohibited, in the hope that this particular feature may play an important part in the decoration of the public streets, but it should prevent as far as possible such corbelling from obstructing a neighbour's lateral view.

It should neither recommend nor forbid any materials or any method of using them. In framing these new Parisian regulations, a careful study was made of those obtaining in the capitals of all the principal countries of Europe, and one of the chief influences of that study was in the regulation of the proportions to be observed between the width of the street and the height of the buildings in them. In this connection a new arrangement is noticeable in connection with the building line. Under the recent Act it is permissible in a narrow street to set back the whole or part of the front, and in exchange the builder is allowed to increase the height of the structure.

The former regulations did not allow of this, as they demanded a uniform building line.

It would be of little use to examine the Paris regulations in detail. Their sanitary provisions are still apparently somewhat behind the times. But their special aim—the abolition of the dull monotony of façade enforced by the previous law—is specially worthy of a note of commendation. If we could but go a step further and in some way combine a regulation of the question of ancient lights with the limitation of building heights in proportion to street widths and with due relation to other conditions, we should have accomplished much. The recent decisions upon this perpetually harassing question have done something to help us, but we are still left to flounder about in a sea of uncertainty. However much this may tend to the enriching of those professional men whose business depends upon litigation, it is most assuredly a great deterrent to would-be clients and a perpetual burden to most architects.

On matters of merely local interest I think I need say but little. There is a point, however, I would like to mention, as it finds no place in our annual report. The advisory committee which was appointed by our Council has had, during the past year, an opportunity of justifying its existence, and has availed itself of it with the specially pleasing result of conclusively disproving, before the Royal Institute, certain accusations brought before that body with regard to alleged irregularities in the professional conduct of respected members of our Association. It is in such defence of the right that united effort finds a fitting mission and serves a most useful purpose.

One other matter I may allude to. A letter appeared a few weeks back in the local press asking how it was that the Birmingham Architectural Association, with others, had not come forward to prevent the erection, in so important a street as Stephenson Street, of such a front as (to be ultra Irish) the back of the new Theatre Royal.

The reply was obvious. First, that the Association has no means of knowing before it is erected what manner of building is proposed; and, secondly, that, if it had that knowledge, it would have no power to enforce its views.

We cannot but all of us regret that the promoters of the scheme in question should, in providing a home for the drama, have thought fit to entirely disregard another art, and thrust such a purely utilitarian erection as a plain brick wall and a plumber's trophy before the gaze of those entering the city by its most important gate. But this matter-of-fact unsentimental age demands freedom of speech in architecture as in other things, and I do not think we should be very much better off if we had sumptuary building laws as well as constructive, with, perchance, the same or, may be, a different set of inspectors to enforce them. The only way is to educate and lead the public to what the requirements of good architecture are, and, in time, to a measure of that civic pride, combined with a true feeling for art, which produced such glorious results as those that still remain to us, in fading splendour, in the great cities of the Middle Ages.

THE CARDIFF ARCHITECTS' SOCIETY.

President's Address to Associates.

On the 25th November Mr. Cholton James [*F.*], President of the Cardiff, South Wales, and Monmouthshire Architects' Society, delivered the following Address before the Society at 6, High Street, Cardiff:—

Gentlemen and Fellow Students,—First of all, it is my duty to thank you most sincerely for the honour you have conferred upon me in electing me to the Chair of this, the Cardiff, South Wales, and Monmouthshire Architects' Society, and, further, for asking me to address you this evening. The confidence thus placed in me was such that should be responded to with the greatest respect, and it will therefore be my duty, to the best of my ability, to place at your disposal my very humble services.

In the first place, by way of brief preamble, our Society, which is allied to the Royal Institute of British Architects, was founded in the year 1890, and the position I have the honour to hold, and in which you have placed me, has been filled previously by many well-known and influential members of our profession who have in all cases upheld with dignity our position with other professions, and it would ill become me if I did not try to emulate the good example set by my predecessors in the Chair.

We have in all about 50 members and Associates, but I regret to say there are many competent practitioners, as well as assistants and pupils, who are not members or Associates of our Society. I would strongly recommend those who are not members to give the question of joining their due consideration, as it is only by unity and active support that we can expect to strengthen our relationship and receive practical benefit from the Institute.

I have on more than one occasion been asked the question, What benefit shall we derive by becoming members of your Society? Perhaps immediately none; but by combination much can be done towards the status of the profession being raised, the door closed to incompetent men, the increased confidence of the public, and perhaps, in the near future, State recognition. This, in short, is what I think means statutory registration, which we in the provinces, far more than our London brethren, undoubtedly need. Are we not constantly in competition with incompetent men who style themselves architects when their proper trade name would be mining engineer, grocer, mason, carpenter, clerk of works, or anything else?

I can quote an instance where a certain clerk of works, acting for a public body erecting public buildings, is now a full-blown practising architect, surveyor, valuer, estate agent, and everything else, his entire architectural knowledge having been obtained from various qualified architects' plans, details, specifications, &c., which passed through his hands all in the short time of eighteen months. This sort of thing should not be tolerated. At the present time anyone without the slightest test of qualification may call himself an architect and be in a position to practise as such. Therefore I think it is high time that the public, as well as ourselves, should make every effort to secure protection from these unscrupulous men. As in most instances, however, there is always someone who will take objection, and in our case the "conscientious objector" has, up to the present, been the artist architect. He prefers that we should remain as we are, and that the public should be left to decide between good and bad. But the practice of architecture is a composite one, and includes something more than the artistic; it includes the constructive, hygienic, and scientific. Therein lies the difference between it and the sister arts; the more need therefore for special training.

I do not agree with the purely "Art Architect" that we should be lowering the dignity of architecture by making it a profession, and that it requires no registration. I am of opinion that architecture at the present time, more especially in the provinces, is too frequently being drawn in the dust by many who are utterly unworthy of the title of architect, and only by a proper scheme of educational training and registration can we hope to raise the tone of the profession and attain the level of the other learned professions. When this has been accomplished then develop the artistic side as much as you like.

In spite of all objectors I am pleased to say that the Institute has at last opened its eyes to this fact, and is not lacking in attention to the matter. At a committee meeting held in London on the 20th October last (which I attended), a subcommittee was elected, consisting of seven members from London and seven from the provinces, for the purpose of formulating a scheme for the education and training of architects with a view to State recognition. Eventually their recommendations will be placed before the Council of the Institute, and if treated with that earnestness the question is entitled to it will ultimately be brought to a successful issue.

This subject is of international importance, and at the International Congress of Architects held in Paris in 1900 a resolution was adopted in favour of restricting the practice of architecture to those provided with a proper Government certificate, placed within the reach of all by a system of proper architectural training, and so protecting the public by debarring incompetent persons from entering the profession.

Again I appeal to those architects who are not members of our Society to subscribe their names, and thus assist the Institute and our noble profession in every possible way towards this important object of bringing before Parliament a Bill for the registration of duly qualified practitioners.

Much might be said as to the proper training of an architect, and many think the present system of pupilage should be replaced by a course of study or college training; but while the present method may be susceptible of improvement, there cannot be much wrong with our present system, which has produced a large array of distinguished men, many of whom now adorn the profession.

The business habits obtained by pupils trained in our offices cannot altogether be secured by attending classes and lectures alone; it is only by a combination of the two that improvement can be effected. I quite agree that every pupil's articles should contain provision for enabling him to attend regularly and at stated times classes and lectures at our technical schools or other recognised training centres, where the professors have been appointed or nominated by the Institute.

The early training of an architect's pupil is an arduous and complicated one if he has made up his mind to succeed in the profession. He practises routine, such as copying specifications, quantities, checking builders' accounts, tracing and copying drawings, and generally spoiling a quantity of paper the first year. In his spare time he is engaged copying examples of well-known works, measuring old buildings, studying building construction, and sometimes geometry, perspective, reading up the history of architecture, and endeavouring to learn dates relating to the different styles. Occasionally he will attend science and art classes and lectures, or, if he does not, he ought to do so. All this is highly essential in the course of study if he wishes to prepare himself for the examinations of the Institute. It is very essential that an architect should have an artistic mind, but he should also be a constructor, be trained thoroughly in business matters, have a thorough, practical knowledge of building materials and their uses, and be well versed and up to date in ventilation and sanitary matters. The term of his articles should in no case be less than four years, and he should spend at least three or four years as an assistant outside the office where he served his articles, in London for preference; and at the end of that period he ought to have such a grasp of his work as would enable him to deal successfully with the many problems he will naturally be called on to solve.

Whilst still a young architect, and having sufficient confidence to make a start in the world for himself, he will more than likely find it no easy task, as, generally speaking, it turns out to be an "up hill" game for at least some years.

I would certainly advise the young practitioner at this stage to take part in well-conducted competitions; but he should be sure that the conditions are fair, the assessor competent, and the subject one which he has some knowledge of. If not successful, the work will at all events keep him out of mischief, keep the hand in form, and the instruments from becoming rusty.

It might not be out of place if I give here a little of my early experience in conjunction with my partner (Mr. Morgan) when we made an attempt to secure the prize of one of the so-called local plums. It is something like twenty years ago, and the first time the Cardiff School Board invited designs for a new school at Radnor Road, Canton. Being young and full of enthusiasm, and naturally knowing more than anyone else, we sent in a design which, in our opinion, could not possibly be beaten (until we saw the others). Much to our disappointment, our design was placed first, at the wrong end; but, being very brave, we soon recovered from this blow, and made other attempts subsequently at various competitions, in several of which we were successful.

Now, after eighteen years of private practice, in which we have gained knowledge and experience, and, what is more, had that starchy confidence knocked out of us, the same but now defunct School Board once more invited designs, and we again competed, this time not with that youthful confidence, but with something of reluctance and timidity, and on this occasion were again placed first, at the right end.

I mention this as an encouragement to those about to start for themselves not to be daunted by reverses at the beginning. Time and experience will in the end bring reward.

One of our principal objects should be to try and educate and lead the public as to what the requirements of good architecture should be, and to instil into them the true feeling for art, which produced such glorious results as those that remain in fading splendour in some of our great cities.

It is regrettable how little the majority of business tradesmen in our leading thoroughfares appreciate true architectural treatment. Their first thought is for the display of their goods, and the larger the window space they can obtain the better are they pleased. In nine cases out of ten the whole of the front apparently stands on one sheet of glass, which necessarily results in anything but sound architecture. As a result our work does not come in until you arrive at the first floor level and often at the second floor. Is it any wonder the term "castles in the air" is so often applied to our buildings? The ground and often the first floors consist of a species of joiner's work of a very light character—the lighter the more appreciated, apparently—with wooden stall-boards and cornices, and supposed ornaments which are mere excrescences on the real building: they are of little or no use, costly, and absolutely preclude anything of a dignified or solid architectural effect. Is it any wonder when "joiner-architects" predominate that our streets look so flimsy? Quite recently I was asked by a client, "What are those two unsightly lumps of masonry in the front of my premises? Could they not be removed? It would add at least 3 to 4 feet to my show window." These, I may tell you, were the piers supporting the girder and carrying the whole of the front of his building and a portion of the floors!

The judicious management of a client is very essential to successful practice. The cantankerous client is extremely difficult to manage: he is always thinking that he is being worsted, and is for ever trying to pick a quarrel with either architect or builder. It is in cases of this kind that business tact is so necessary to the profession: this cannot be learned from books; it can only be mastered by experience. Try to humour the client in small details, be tactful, consult him occasionally, and try to win his friendship and confidence.

The ignorant client is also most difficult to advise. He seldom knows what he really wants, neither has he the same mind on two consecutive days; therefore the utmost firmness and tact are necessary in dealing with him. You will find he is far more anxious to have something copied that he has himself seen than he would agree to originality. He has the impression that everything that has been done is right, and that all unrealised plans are wrong. Such a client apprehends very little until the building is in progress and the walls rising; then, perhaps, he begins to understand the plan, and realises what he will have for his money.

I cannot allow this opportunity to pass without again ventilating an old grievance of ours—namely, the system adopted by corporations and other public bodies in having architectural work done under the supervision of their engineers and surveyors. The designing of these public buildings should be given out to qualified architects, whether by competition or otherwise. We, as burgesses and ratepayers, have a right to demand that such work should be done by outside practitioners. I do not for one moment mean to imply that our borough surveyors are incompetent, neither do I mention the matter with any disrespect to them; speaking of those within our immediate districts they are gentlemen held in the highest esteem for their ability and courtesy by the members of our profession, and all who come in contact with them. But I wish to point out to our corporations and public bodies that the system is wrong and unfair, both to our profession and in the public interest. Has it not been the case, when extra work has been thrust upon these gentlemen, that they have at the proper time made application for an increase in their salaries and staff—and perhaps rightly too? But when the pressure of this work has subsided, and they fall back to the usual routine, how often do we hear of their salaries and staff being reduced? I do not advocate cheeseparing, nor do I wish to see work done on what is termed the "sweating" system. But if such work were done outside by members of our profession when completed the matter would end with one expense—not a continuity in the way of salaries. This grievance, I am glad to inform you, has been taken up by the Institute, and a petition has recently been signed by the Presidents of the parent Institute and of the Allied Societies, which has been forwarded to these public bodies, urging upon them seriously to consider the desirability of such work being done by other than their officials.

Another important matter causing no small amount of controversy just now is the question of our modern by-laws. We all have an abhorrence of the terms "jerry builder" and "insanitary dwellings," but our Health Committees, prompted no doubt by their surveyors and medical officers, have, I venture to suggest, gone to the other extreme, which has affected seriously the housing of the poor. Compare the by-laws of ten to fifteen years ago with those of to-day. Ten years or so ago we were able to erect a workman's cottage (of four rooms) for something like £130 to £150, which could be let at 4*s*. per week as a paying rent. To-day the smallest four-roomed house cannot be built under £170 to £200, and consequently cannot be let under 6*s*. per week as a paying rent. This, of course, is partly due to the increase in the price of building materials and labour, but chiefly to the very severe and restrictive by-laws of to-day. Every few years indeed seem to add some fresh and drastic by-law in the building of such property, which only serves to increase the rent and causes private enterprise to give up the erection of such houses.

In the hill district this trouble is perhaps more palpable than in our towns, as owing to the hilly nature of the ground it is rarely possible to obtain what may be termed a flat site. The ground often has a gradient of something like 1 in 5 or 6, which tends to add considerably to the cost; and the heavy cost is further augmented by having to adhere to by-laws which compel the roads and streets to be of a certain width, formed and metalled, to have pavements, curbing and channelling, separate drainage both for sewer and storm water, together with a special damp-proof course (each surveyor with his special kind), a layer of concrete under all floors (usually in cement), thickness of walls, sizes of timbers, heights, &c., all to their own specification.

I agree that by-laws appertaining to improved and up-to-date methods of draining and sanitation are absolutely essential, but many of the others are beyond all reason.

After numerous deputations to our Corporations and our Councils, both in towns and the outlying districts, with promises of revision, it has generally been deferred to the usual Standing and

Joint Committee, with the too often result of nothing being done.

Quite recently Mr. Walter Long, President of the Local Government Board, was induced to receive a deputation of local authorities on this subject, when he expressed the hope that some good would result from the fact that in the later regulations remedies could be found for many of the evils complained of.

I have one more matter to mention, which I think the majority of architects will readily agree is a grievance, and that concerns the Education Act, *i.e.* as to those who should have the planning and designing of our future schools. The late School Board, after years of labour, sacrifice, and much thought, have been replaced by new authorities, in many instances, may I venture to say, quite inexperienced in educational matters.

For years past many of us have been engaged in the planning and designing of these schools, some of us under agreements with the late School Boards, and have devoted practically the best part of our lives to this particular work, so much so that I maintain we have become to a certain extent specialists in school planning.

In many instances the new authorities have deemed it fit and proper to cut down expenses, and have in the cruelest manner ignored such appointments without the least consideration for those who have held them for long years as qualified and experienced architects, and have appointed others.

I repeat that this was done in a cruel manner, inasmuch as the conditions of at least one of these new appointments precluded all architects of position and experience in this particular work from applying. In the first place, instead of offering the customary commission as remuneration, a fixed salary of something like £250 to £300 per annum was offered, and the person appointed was to devote the whole of his time to the work. What architects could apply for such a position as this when many of us pay our staff of assistants as much? Is it any wonder that such appointments fall to the lot of a mason or carpenter's foreman, as was the case in one of the appointments recently made by the responsible authorities? I am waiting with much curiosity to hear how the plans of such a person will fare at the hands of the Board of Education.

It seems to me that such appointments are purposely made by the inexperienced, not so much for the saving of public money, but to hide the want of knowledge in those who have to control. In making such appointments they deprive others who have spent years in conceiving the better plans and designs for the teaching of the rising generation and the building up of our Empire.

I may be dealing somewhat too lengthily with this subject, perhaps, to please all, and from what may appear selfish and personal motives, but as it has already and in the near future will further seriously affect myself and partner, and a great many others, I think it an opportune time to ventilate and in some way give expression to what I consider not only a grievance but a lasting shame. The public should know that cheap architecture, like everything else cheap, cannot be other than distasteful.

I feel sure that those responsible for the framing of the Act never contemplated the adoption of such a course.

I am pleased to be able to say that my remarks do not apply to all the new authorities. Some of them have already seen the folly of others' ways, and are treating with our profession in a way they themselves would expect to be treated, upholding the status of our art rather than trampling it underfoot.

Usually public bodies stipulate in their contract agreements that the recognised wage shall be paid to the workman, whatever his trade may be. Surely the one who works hard with his brain and pencil is entitled at least to equal recognition with the man who uses a pick and shovel. If these authorities are not aware that there are recognised fees for architects, and that such a body as the Royal Institute of British Architects exists, the sooner they become aware of that fact the less inclined they will feel perhaps to tread us under.

I trust the Education Committees of Cardiff and our sister towns will take a leaf out of the book of our late School Board when dealing with matters concerning architects, and distribute the work to qualified architects in the district who are capable of dealing with work of so important a nature.

One has only to look around at our many school buildings, especially the more modern ones, to see that they compare favourably with any that have been built in other parts of the country. I am sure the members of the late School Board (after nearly thirty years of labour in the cause of education) felt proud of the buildings they handed over to the new authorities, and they had the consolation of knowing that in distributing the building of these amongst the various architects their trust had not been misplaced. If the education committee of our corporation emulate this principle they will, I feel sure, have even better results than in the past.

I must not forget our friends the builders, for, as Mr. John Belcher, the President of the Institute, said at the dinner of the Institute of Builders held in London quite recently, are we not as architects dependent upon them for the realisation of our dreams? In the evolution of their calling builders preceded architects, and not until there arose subsequently a new race, one which we all abhor, viz., the jerry builders, did architects make an appearance, to be, as the President termed them, inspectors, or builders' policemen. We have in our immediate neighbourhood builders of the highest abilities and character, who I am pleased to say are capable of accomplishing any work that comes their way. This is proved in our new municipal buildings and law courts, now nearing completion, which is a credit to the local firm who erected it. Let us further hope that our new university buildings for Wales will fall to the lot of local builders. I am somewhat reluctant to say so, but the builders in their own calling have been successful where we as local architects have failed. My own experience of our local builders enables me to speak of them in terms of the highest praise, and I think I have been associated with most of them in our district.

His Majesty the King has once more remembered, and shown his appreciation of our art in conferring again upon one of our number a knighthood. I refer to Sir Aston Webb. On no member of our profession could the honour be better bestowed and received with more pride and appreciation by the profession. He has justly earned for himself and merited this reward from the sterling work he has performed. It is needless for me to enumerate such works, for they are many and well known to all of us. Those who have not yet seen work of Sir Aston Webb's in actual construction have yet a pleasure in store, and one of his masterpieces in terra cotta, the Birmingham Law Courts, is well worth a visit to Birmingham to view.

His Majesty must have been fully acquainted with the high character of his work before entrusting to his care the designing of the memorial to our late and much beloved Queen Victoria, which is to eclipse anything of the kind yet erected. May he be spared to see his design carried out, to be not only a lasting tribute to a Queen beloved by all, but also a memory of the designer!

During the winter months our Society has inaugurated the following series of Papers to be illustrated by lantern slides:—

Dec. 13th, 1904.—"Northern Italy." By Mr. Edwin Seward, F.R.I.B.A., Cardiff.
Jan. 10th, 1905.—"Public Baths." By Mr. Harding Payne, A.R.I.B.A., London.
Feb. 14th.—"A Trip to Belgium." By E. M. Bruce Vaughan, F.R.I.B.A., Cardiff.
Mar. 14th.—"The Architectural Planning of Public Buildings." By Herbert W. Wills, A.R.I.B.A., London.
April 11th.—"The Absence of a National Style in Modern Town House Architecture." By W. Henry White, F.R.I.B.A., London.

These Papers are not given without much time and thought being devoted to them, solely for the benefit of our Society and in the interest of our profession. I ask you, gentlemen, both members and Associates, to attend these meetings and bring your friends, and show your appreciation by supporting them on each occasion in a manner which they deserve, especially as regards those to be read by gentlemen coming all the way from London for our benefit.

LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

M. Choisy's Researches in Ancient Building Construction.

At the rooms of the above Society, on Thursday, the 15th inst., Professor Capper [*F.*], of Manchester University, read a Paper on M. Choisy's researches in ancient building construction, Mr. G. B. Bulmer [*F.*] (President) in the chair.

The lecturer said that M. Choisy's researches into ancient Egyptian building construction follow his previous detailed studies along similar lines of Roman and Byzantine work, extending over a period of more than thirty years. To Egypt he has brought the same power of penetrating analysis of constructive fact, the same keen insight into the practical necessities of building organisation and method that illumined so admirably his account of ancient Roman building, as well as of the succeeding school of architecture at Byzantium.

M. Choisy's researches in Egypt, though not apparently the result of prolonged residence, and suffering from a curious ignorance of much recent work on Egypt and new data so derived, give undoubtedly an epoch-making study, presenting some well-known facts in altogether new relationships, and giving us daring and reasoned solutions for many problems hitherto apparently insoluble even to experienced Egyptologists. As one of the most important of these solutions of long-standing enigmas the lecturer gave in detail, with lantern illustrations from M. Choisy's book, the minute study of Egyptian brick walls, built with undulating bedding, a puzzle that has hitherto baffled every inquirer. As demonstrated by M. Choisy, these curious walls—which occur on a large scale at Karnak, Abydos, El Kab, Philæ, and elsewhere—are the logical outcome of Egyptian crude brick building on sloping sites, given the scanty foundations possible in Egyptian soil, where these walls are liable to attack by the waters of the Nile.

Similarly, M. Choisy, by a single illuminating paragraph, accounts for the well-known bench on the sides of the ascending gallery in the Great Pyramid, admittedly unexplained in Professor Flinders Petrie's classical book on Gizeh.

The lecturer then gave an account of M. Choisy's explanation of the transport of material, whether in the enormous blocks of obelisk or colossal statue, or of the materials of more moderate dimensions used in ordinary building, and of his very ingenious demonstration of the use of sand for the nice adjustment of the great blocks.

A vote of thanks to the lecturer was proposed by Mr. G. B. Bulmer [*F.*], and seconded by Mr. W. H. Beevers [*A.*].

G. Ernest Reason.

Fountains Abbey.

ENGLISH CHURCH ARCHITECTURE IN ITS RELATION TO ENGLISH HISTORY.

By the Reverend H. C. Windley, M.A.,
VICAR OF ST. CHAD'S, BENSHAM, GATESHEAD-ON-TYNE.

Read before the Northern Architectural Association at Newcastle-upon-Tyne, 6th December 1904.

> "For really great art ideas common to the nation are essential."
> J. A. Symonds, *The Renaissance in Italy*, vol. iii. 353.

SINCE undertaking to read a Paper to your Association on the subject of "English Church Architecture in its relation to English History" I have happened in my reading to come across these words of one of our great modern art critics. I have ventured to take them as a sort of motto for my Paper, because they seem to express a truth which I think many architects do not sufficiently realise. Great art in any branch, whether of the fine arts or the applied arts, must inevitably be the result of inspiration, and not merely of fashion, or schools, or the copying of styles, or even of the State organisation of such a profession as yours, and still less of systems of examination. National art in the twentieth century will be in its merits as well as its demerits a reflection of national ideals, and these ideals will be largely influenced by our knowledge and appreciation of our national history. We must not go to the past, however, as a species of mine from which we may dig ideas as they suit us, to be reproduced in our modern work. This has undoubtedly been, and is still to a great degree, a danger in your profession. But we need to study the architecture of bygone days, always in relation to the general history of its day, to see the sources and goals of its development as they are revealed in the ideas and aspirations of its authors. Architecture is one most important volume in the great unwritten library of history, but if it is to be studied effectively it must, like every branch of history, be studied scientifically and in the spirit of history.

The study of English church architecture leads us back into a period of which there is little or no documentary survival, while the evidence of its remains is only traceable with great difficulty and with much specialisation.

English architecture has from the earliest beginning been deeply affected by foreign influences. So much is this the case that in a certain sense it would be correct to say that we have no purely English architecture; and this paradox points to one important characteristic of the English nation, viz. its marvellous power of assimilation, of absorbing not only the "ideas" of other nations, but even of absorbing other nations themselves and of welding them, even when they appeared to us as conquerors, into the unity of our national life.

The historical student of architecture will be so far impressed with this fact that he will very soon be forced to recognise that if he is to understand the architecture of this little island he will be obliged to begin his travels beyond the seas.

Consider for one moment some of the chief influences which we can discover at work in the development of our English architecture, and at once we shall grasp the width of the subject, the immensity of ground which we shall have to study. Celtic, Roman (Imperial), Romanesque, Lombardic-Romanesque, Scandinavian, Oriental, French influences, and later the great upheaval of the Renaissance: all these have passed and left their mark, while outside the width of geographical and ethnical study which they suggest there are also the ecclesiastical, theological, and, above all, the economic influences at home and abroad of which we must take account.

The fact is, the Anglo-Saxon conquerors of Britain have given us our national name and a good many of our national characteristics; but they did not, so far as I can see, *ever originate in design*; they assimilated the ideas of other men, they modified but they did not produce any original architecture, simply because they had none.

The heathen Anglian and Saxon invaders landed in this island, and they found here, what they had in all probability never seen before, stone buildings, fortified towns (falling, it is true, into ruins), and they found churches; they found the broken fragments of the Imperial Roman civilisation continued, when the strong Roman arm had been withdrawn, by the Romano-Celtic civilisation of the half-Romanised but feebly decadent descendants of the ancient Celts or Britons.

Probably nothing in the new-found home of our heathen ancestors appealed to them less than the value or importance of these buildings. They for the most part completed the destruction of the towns and have left us but the barest remnants of their walls or churches. Whilst we cannot underestimate the antiquarian interest of the few remains they left us, we are forced to recognise that the study of Romano-Celtic architecture is of no direct value to us in tracing the sources of English church architecture. It was not until long after their first appearance that our Anglo-Saxon ancestors became Christian, and until the conversion of England was well begun they obviously had no need of church buildings.

The old Christian inhabitants of the land were forced into the wilder parts of the west, and we can well believe that such architectural skill as was left to them was rapidly deteriorated or entirely lost in the precarious life which they were forced to lead.

The first of the new English kingdoms to feel the need of church architecture was Kent, which through a royal marriage had already welcomed a Christian queen before the landing of the first missionaries in 597, and under her influence her Frankish clergy had been able to restore the ruins of one of the old Roman fabrics, that of St. Martin at Canterbury. St. Augustine and his followers proceeded, with the King's permission, to restore other ancient ruins surviving from the Roman occupation, and such churches as they built appear to have always been basilican in plan, with the usual round apsidal termination.

Meanwhile, in the north, St. Columba had landed in Iona, and from this source we find a different architectural and ecclesiastical tradition advancing to meet the Continental mission of St. Augustine. The Kentish mission made little progress. Paulinus, indeed, was able to penetrate to Northumbria; but his mission, though most important in its indirect results, was forced to retire, and the northern kingdom relapsed almost entirely into paganism until about the year 635, when St. Aidan arrived at the invitation of King Oswald.

The influence of Aidan's Celtic mission was, architecturally as well as religiously, of the most far-reaching importance.

The Irish-Celtic Church was the home of great artistic activity as well as of great missionary fervour, and both of these qualities have left indelible marks on the history of our English Christianity. The missionary activity—and with it the architectural activity—of the Italian mission in Kent remained almost entirely confined to South-eastern England. But the influence of the Celtic mission through Iona and Lindisfarne comparatively rapidly overspread the north and the Midlands, and penetrated to many parts of the East Anglian and East Saxon kingdoms, and through Wilfrid reached the most southern borders of Wessex. The plan of the Celtic churches was always rectangular, with the square-ended chancel, unlike the Roman apsidal plan; and it is perhaps the most singular fact in architectural history that throughout the development of English church architecture this square-ended chancel of the Celtic church should have again and again persisted, and through every introduction of the Continental apse should have remained to this day the most distinguishing feature of English churches.

The period of the conversion of England may be roughly said to have extended from the landing of Augustine in 597 to the accession of Theodore of Tarsus to the throne of Canterbury in 669. It was under the rule of Theodore that the isolated national churches of the Anglo-Saxon kingdoms were first welded into a homogeneous whole, while it was not until the accession of King Egbert in 827 that our ancestors emerged into any kind of national life. This period of about 150 years was the best and happiest age in the existence of the Anglo-Saxon Church, for very shortly the land was again to be overrun by the pagan Danes or Norsemen of Scandinavia.

But before we pass on to look at the later post-Danish Saxon buildings we must briefly consider how far advance had been made before that invasion towards any national ecclesiastical architecture. Præ-Saxon Christianity being Roman in origin, we are not surprised to find one or two remains of Christian churches of the very earliest period which are pure basilicas in plan. The finest examples still remaining, the plans of which are easily recoverable, are Silchester (certainly), while Brixworth (Northamptonshire) and Wing and Lyminge should, I think (with all respect for recent authority), be added. But it is important to note that we have the remains of at least one Romano-Celtic church at Perranzabuloe, *circa* 450, which shows the plan of a plain parallelogram without aisles or chancel, such as we have noted to prevail in Ireland and (through the Celtic mission) in later days in the Anglo-Saxon kingdoms.

Under the influence of the Celtic mission we shall find that this simple parallelogram, as at Perranzabuloe, is modified by the addition of a smaller parallelogram connected with the larger by a narrow chancel arch, and this, with various modifications of porches, becomes the normal Celto-Saxon plan which we find most perfectly illustrated in such churches as Escombe, in the county of Durham, and Bradford-on-Avon, in Wiltshire.

From the point of view of their plan the more famous churches of Jarrow and Monkwearmouth are of much less value to the architect as evidence. At Monkwearmouth little remains of the original church except the tower and west wall, though there is little doubt that the nave and chancel stand mainly on the original foundations; but even the tower, as regards its upper portion, is almost certainly post-Danish; while at Jarrow the church is in all probability a composite building, two original churches being joined by a late but most interesting post-Danish tower. Nevertheless these churches are indirectly most valuable evidence of the pertinacity of the Celtic traditional plan. Benedic Biscop, we know, took immense pains to cultivate the art of building in Northumbria, and we read how he even brought masons from abroad to build after the Roman (*i.e.* Romanesque) manner; and yet we find the net result as regards plan is utterly unlike anything which he would see in his Continental travels. In order to realise this more fully, it is worth while to pay a visit to Monkwearmouth, and then to go straight to St. Columba's, Southwick, where you will see a most excellent modern basilica of just the type which Benedic would see in its perfection during his visits to Italy. We must, however, remember that in this case it is not all contrast; if the plan of Monkwearmouth is Celtic, the execution and type of masonry are indeed foreign, and we may reasonably look on Benedic and his great building successor, Wilfrid, as the true fathers of English masonry, a masonry inspired by Italian models.

With the consolidation of the Anglo-Saxon kingdoms under Egbert we complete one stage or period, and with the ninth-century incursions of the Danes we open a second stage in the consideration of our subject. The Danish invasions continued over a long space of time, but the climax of their most destructive period is well marked by the martyrdom of St. Edmund on 20th November 870. The English buildings all along the eastern coasts and well up the courses of the rivers had been steadily pillaged and burnt. In 879, however, Alfred the Great compelled the invaders to treat, and they agreed to accept Christianity; but while they were thus led to live near or amongst the English people, it must be borne in mind that for that very reason the English became modified in blood; the Danes intermarried with the English to a great extent, but for centuries the two did not become wholly welded into one people, and even now it is probable that many of us in this room are far more purely Scandinavians in descent than we are English, though we pride ourselves on the name!

The Danish invasions did not cease; the successors of Alfred were only able to check and not to suppress them, and a hundred years later we find Dunstan, the great statesman-archbishop, deposing (952) Wulfstan, the Danish Archbishop of York, in order to gain a necessary influence over the northern clergy. The effect of Dunstan's splendid administration was for the moment undone by the last of the Danish invasions (990-1017), and again the English Church yielded a saintly martyr in the person of St. Elphege.

This long period of apparently disastrous strife and invasion ended in an enormous gain for our national life in the consolidation of the kingdom under Cnut, the first undisputed King of all England.

The Scandinavian invaders, like their Anglo-Saxon predecessors, had no knowledge of stone construction. The constant strain of invasion and the disorganisation in Church and State told so heavily on the Church that the monasteries, the home of the arts, were almost entirely emptied, and in many cases stood in ruins and were entirely deserted by their inmates. Evidence of this is always before us in the north in the memory of the wanderings of the monks of Lindisfarne carrying the relics of St. Cuthbert and St. Oswald—wanderings which were fraught with great consequences in the final settlement of the much-tried brethren in their new home upon the Wear, with its glorious buildings of a later date.

During the hundred years of comparative peace which followed the Treaty of Wedmore great efforts were made by Alfred and his successors to recover some measure of the prosperity and learning of the Church. These efforts were constantly interrupted by internal disputes, and little seems to have been effected, though much restoration of ruined buildings was carried out. So far as this restoration work can be traced it shows marked deterioration in style, in execution, and in construction. From this period I date what used to be considered a characteristic of Saxon work, viz. "long and short" work, coupled with the imitation timber construction so well shown in the Towers of Sompting (Essex) and Earl's Barton (Northants).

These marks of what I shall call the post-Danish period are, I believe, the result of the loss of constructive skill occasioned by the destruction of the monastic art schools and the dispersion of their skilled inmates by the heathen invaders, and such loss of skill could not fully be supplied by the Norse conquerors even when they became Christian. To them wood construction was the only form of building known. That they should have attempted to transfer their ideas of wood construction to their earlier attempts at stone work is not surprising; and the single remaining wooden church at Greenstead (Essex) only points to what was probably the most general method of supplying the architectural needs of the time, in accordance with the ability of the ruling class. What I consider to be a perfectly clear example of post-Danish restoration of an earlier but ruined monastic church occurs at Repton (Derbyshire), where, I maintain, you will see a peculiarly fine early Anglo-Saxon (strictly Mercian) crypt modelled on Continental ideas as regards detail, but rectangular, with most excellent work in columns and vaulting, similar in many respects to the little eastern chapel in the cloisters of San Zeno at Verona, while the Saxon superstructure with traces of wood construction strips is the rude post-Danish restoration of the upper church.

The conquest and consolidation of the kingdom by the Danes thus concludes our second stage in our subject, and again we mark the assimilative power of the English race. The Danish conquerors were soon absorbed in the older nationality.

Our third period I shall take from the accession of Edward the Confessor (1042) to that of the accession of the Angevin line begun by Henry II. in 1154. This is again another period of conquest and of absorption. During this period the relations of the English Church with the Continental Churches became rapidly more intimate; the journeys of ecclesiastics and their increasing learning spread the knowledge of the arts as they had not been spread since the time of the early Celtic missions. Once more we find that the improvements in the art of building are foreign in their origin, and the movement is led by the half-Norman King Edward. To such an audience as this it is probably unnecessary that I should point out that the so-called Norman architecture is not any more Norman than English; the Normans themselves were closely akin to, and little more advanced in civilisation than, the Norsemen who had recently conquered England. Just as with the English Church, so with the Norman. In Normandy the Church was undergoing a great revival, chiefly owing to the labours of the great Italian scholars like Lanfranc and Anselm. It was this revival of religious fervour aroused by them that partly found its outlet in enormous building activity—an activity which both on its religious and artistic side was already telling almost contemporaneously on England even before the Conquest, and which so far as we can see would inevitably have worked its course, though more slowly, if that Conquest had never taken place.

What, however, would have been a work of time, was by the Conquest effected almost at a blow. The English clergy were insular, and were slow to accept the new teaching; but the Conqueror when he took over the government at once removed the majority of their leaders who were disaffected and placed Italians or Italianised Normans in their places. The result was that while the majority of the parochial clergy and monks remained the same in *personnel*, they were immensely stimulated by the infusion of new life from without.

Architecturally the result is of course well known. Church after church was restored or replaced within a very few years comparatively, and in every case we find they took the ordinary Italian style of the period, that Romanesque which had been gradually winning its way through all the Continental countries, and which had already begun to be ushered into England by the influence of the Confessor even before the Normans were thought of as our conquerors.

The Normans, though they had learnt the new style, had not learnt to deal satisfactorily with its structural difficulties. The new basilicas were structurally inferior to the earlier Saxon work, and a great number had to be rebuilt within a very short period of their erection. The plans of very many of these churches are still easily accessible beneath the later buildings, as at Durham, or stand out in almost perfect preservation, as at Norwich. These plans were invariably apsidal, one or more apses forming the eastern termination of chancels, aisles, and chapels.

We are thus once more face to face with the remarkable fact which I have already mentioned, viz. that of the persistence of the Celtic tradition of the square termination ; the new Norman, or more correctly Romanesque plan, almost as soon as it becomes dominant gives way to the old tradition. Church after church, cathedral after cathedral, must be rebuilt, foundations fail or towers fall ; and in every case the new buildings spring up, as at Durham so also throughout the land, rectangular and not apsidal. For one Norman church which has survived with its apse, it would be easy to quote dozens where in reconstruction the apse has given way to the rectangle. Here in the north we have a parish church at Warwick, near Carlisle, which has remained unchanged, to remind us of the multitudes of similar little churches which experienced the fate of the great church at Durham.

And just as in architecture the English clergy absorbed and converted in their own way the architecture of the Continent, so it was with regard to the foreign ecclesiastics and the foreign nobles. Towards the close of our third period, the native and foreign elements are rapidly coalescing : we begin to discover a united English nation which is once again conquering its conquerors by this quiet method of assimilation.

I have said that in considering this period, which for convenience we call the Norman period, we must look primarily to Italy for the influence of the prevailing Romanesque style working northward through Normandy to England. At the same time our English as well as the Norman architecture across the Channel was being materially modified from Oriental sources, and this in two ways : first through the Crusades, and secondly through the conquest of Apulia and Sicily by the Normans.

The first Crusade falls within our third period, beginning in 1096, while the invasion of Apulia began as early as 995 and culminated in Roger's Kingdom of Sicily, beginning in 1130 and continuing under his successors until 1266. Through both of these channels the Franco-Normans and in a less degree the Anglo-Normans were brought into direct contact with Saracenic architecture. If Italian ecclesiastics were seated on English thrones, Englishmen might be consoled to know that two at least of the Sicilian bishops were natives of England.

The origin of the pointed arch has been most pertinaciously pursued by architects and archæologists, and it has been most variously accounted for. The most reasonable of these explanations has been that it arose out of the constructive requirements of vaulting ; but what could be more reasonable than that the Christian builders of Europe learnt the possibilities of such pointed vaulting from the existing Moslem works of the East and South? In Sicily, at least, you see Norman and Saracen meet on a common ground, while Saracen workmen build under Norman masters. Whilst such a suggestion may be unprovable, I cannot but think that the relations between the Normans and Anglo-Normans and the Mediterranean must have had some effect on the development of our architecture, and I believe that there remains an important field for the study of this subject, in Sicily particularly, but also in other parts of the Mediterranean littoral, where students may compare the wonderful Norman buildings of the south, with their Byzantine, Oriental, and Classical decorations, with the great buildings which we find to-day in Normandy and England.

The transition from what is usually called Norman to the early pointed style is extremely gradual. By 1150 the pointed arch was in widely accepted use, but instances occur much earlier in the century. No line can in fact be arbitrarily drawn between any styles of architecture any more than between any stages in any sort of organic growth. As a matter of fact, the whole of my third period (1042–1154) was in reality a transitional period, a period during which the Normano-Saxon people of Northern Europe were assimilating and transforming the treasures of southern civilisation and art, whether coming from the Romanesque of Northern Italy or the more distant shores of the Mediterranean. It is from this period first that architecture develops on truly independent lines according to locality. From this time (1154) onwards we may begin to trace the development of true English Gothic architecture as distinct from the Gothic of France, the Empire, or of Italy. It would be superfluous for me to attempt to enter into any detailed discussion of the recognised styles which English building passed through in this development; you as members of the profession know your text-books. What I want to do in as short a compass as possible is to suggest that in spite of the convenience of dividing our mediæval architecture into "styles," it would be more scientific to consider the so-called styles of Early English, Decorated, and Perpendicular architecture as merely structural and decorative modifications which our forefathers evolved from the transitional Norman period.

I take as my fourth division of time the period from Henry II. (1154) to Henry VII. (1485). During this period of 330 years there were no great upheavals such as we have considered in the past, nor such as we must consider later as arising in the Renaissance, but all through the period the activity of the architectural world was related to the intellectual and economic conditions of society. The development of the monastic orders, for instance, the growth of the Cistercians from the twelfth century onwards until they became the great wool growers and exporters, perhaps the wealthiest single body of men in the community; the coming of the Friars; the growth of boroughs, with their corporate government and guilds of all sorts which were great patrons of building; the universities—all these and a thousand other changes in our national life, Continental conquests, French dominions, repeated Crusades with their crusading orders of Templars and Knights of St. John, contributed to call for fresh buildings, fresh developments of style and ornament, while the means for such costly building activity were by no means always easily raised, and at one time, following on such an awful disaster as the Black Death, must for the time being almost have ceased. The fact is, the life of the so-called "dark ages" had been "focussed in religion and stamped in the undying memorials of stone construction," as Bishop Lightfoot has said in his Historical Essays, and we cannot rightly study our architecture without opening our histories—the written book and the stone book here meet to throw a necessary light the one upon the other.

And the leaders in all this wonderful life were still often "foreigners." Simon de Montfort, the "father" of the English Parliament, that proudest possession of our national history, was a Frenchman born, and again and again the same note of assimilative power in English nationality is struck, and all through these wonderful years, in spite of foreigners, in spite of constant travel, an English architecture is evolved, and yet an English architecture, singularly enough, which finds its most distinguishing mark in that peculiar persistence of the Celtic square-ended chancel, which we have marked from the earliest days, as compared with which nothing similar can be found in the architecture of any country in Europe. And, lastly, before we pass from the hasty view of this period, we must mark the final evolution of our peculiarly English style. As the national life becomes more and more marked, as the national language becomes more articulate, as our relations with France become less frequent and close, we finally produce the wonderful buildings which we call "Perpendicular" in style, but which might be called in the truest possible sense "English," and English only. You have not long ago had the benefit of a most admirable Paper from one of your leading members on the subject of this fifteenth-century architecture, and I could not if I would deal with it in any detail, but I hope that the Paper you had from Mr. Wood * will not have been in vain in directing more and more attention to the most English architecture which we possess.

I must now pass to my fifth or modern period. The end of the fifteenth century was marked by one of the greatest upheavals in the history of Europe. The fall of Constantinople, the opening out of the "new learning," the discovery of America, and the invention of printing mark a crisis in our history which is reflected in our architecture.

With the invention of printing the stone book of church architecture gave place to the torrents of literature which almost overwhelmed the Church in the sixteenth century. Church architecture became almost a lost art, not only here, but throughout Christendom, although there was intense architectural activity as regards domestic buildings. The wealth of the Middle Ages centred to a very great extent in the Church, and especially in the monastic orders: nobles were too busy in making war, the new order of burghers were too busy in securing the rights and privileges of trade; but now with the new life of the Renaissance wealth was not only shifted from one body in the community to another, but was enormously increased. Facilities of commerce and security of trade steadily improved, while in an incredibly short time the treasure of new continents began to pour into Europe, changing the economic conditions of the age and enormously raising the standard of living. The Church of the Middle Ages had been indeed the home, the town hall, the public offices, even the theatre of mediæval life; but now the decorations, the rich stuffs, the colouring which had been lavished on God's house were in turn lavished in even more prodigal profusion on the new palaces of the nobility and burgher princes.

The Jacobean age brought with it a revival of devotional life which found an outlet in great works of much-needed restoration; but with the exception of Wren's great masterpiece and its attendant satellites in the area destroyed by the Great Fire, and the completion of St. Peter's at Rome, I know of no really great church building throughout the length and breadth of Christian Europe. The Jacobean revival of architecture, which was to a great extent an echo of the late fifteenth century as regards its style, gave place to the depraved materialism and neo-classicism of the eighteenth century, which swept not only over England but over Europe, with its wave of whitewash and obscenity in every land.

In England, after the restoration of Charles II., Gothic architecture could hardly be tolerated. The refined Evelyn denounces "a certain fantastical and licentious manner of building, which we have since called modern or Gothic," and denounces those "dull, heavy, monkish piles, without any just proportion, use, or beauty," while the great architectural genius of the age, when consulted on the restoration of St. Paul's after the Fire, expressed his wish to

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* "English Architecture of the Fifteenth Century." By W. H. Wood. (JOURNAL R.I.B.A., 27th August 1904).

replace "the Gothic rudeness of the old design" by a new erection "after a good Roman manner." Wren himself did indeed make an occasional effort at continuing "Gothic rudeness," and you will remember the western towers of Westminster as an example of the very slight appreciation of the style which he possessed. Wren's grandson, at a much later date, gives further expression to his ancestor's views on Gothic architecture when he says: "They soon began to debauch this noble and useful art . . . they set up those slender and misshapen pillars, or rather bundles of staves and incongruous props, to support incumbent weights and ponderous arched roofs without entablature; and though not without industry, nor altogether naked of gaudy sculpture, 'tis such as gluts the eye rather than gratifies or pleases it with any reasonable satisfaction."

But, after all, the "reasonable satisfaction" induced by the existence of a blessed "entablature" which was produced by Wren and the seventeenth-century masters was a very much higher satisfaction than that which satisfied our eighteenth-century ancestors.

Again, in the eighteenth century, not only in England, but all through Europe, the low standard of spiritual life runs side by side with the utilitarianism of the age in producing the most hideous architectural abortions as regards ecclesiastical building which the world has ever seen. Jesuit architecture in the south vied with churchwarden architecture in the north in destroying vast areas of gorgeous wall paintings and frescoes, and defacing woodwork and stonework alike. We in the north have only to go to Durham to realise the immensity of the damage when we think of the chapter-house wilfully destroyed to make a stuffy meeting-room for idle and fat bewigged canons; when we remember that the Galilee Chapel was only saved by one vote from a like destruction in order to make a convenient drive to the dean's kitchen, and the whole of the time-worn exterior of the church was solemnly chipped of two inches of its surface to make it neat and abolish the marks which the venerable hand of Time had laid upon it. In all the destruction wrought by fanaticism under Edward VI. or Cromwell, it is probable that nothing was done approaching the irreparable damage of the eighteenth century. The freedom of the Renaissance had at last found its true fetters in the slavery of a licentious atheism which pervaded everyone in society, in politics, in religion, beside which the later days of Imperial Rome can alone be placed in comparison. The devotion of the few did indeed keep alight the lamp of faith, and with it memories of a more glorious past; but it needed the touch of revolution and the bitter cry of down-trodden toilers at home and abroad to force the glimmering spark into a flame.

The ideals of the French Revolution, the movements of the industrial revolution in England at the end of the eighteenth century, the conception of the brotherhood of man, were needed if great ideas were once more to inspire any great art.

At the close of the eighteenth century we enter another period when men are beginning, though feebly, to feel the inadequacy of the purely material measure afforded by wealth. With new yearnings and under new economic conditions art and architecture begin once more to claim their place in the fulfilment of the various offices of national life.

Architecture in the nineteenth century will lend its witness to the turmoil and caprice of an age of unsettlement; it will lend its witness at once to the most vulgar materialism and the most passionate devotion. During the century the whole view of life has been undergoing a change which I venture to believe will become more and more recognised. The social instinct is gradually becoming sanctified in the realisation of the Incarnation, and men are coming to understand that each in his separate sphere has a function to perform, a life to contribute, a work to do for the glory of God and in the name of the Crucified. And this feeling ramifies through all branches of national life, not always recognised, but still none the less surely present, men realising that not in religion alone in its old conception, but in every walk of life the service of God and our fellows is foremost. Archbishop Benson boldly stated this truth when he said "there is nothing secular but that which is sinful," and the more clearly such a view is held, the more it permeates society, the more shall we find an ideal which will not only in church architecture but in all the arts produce great work.

And as regards church architecture—for this is my subject—it *must* be the outcome of Church life and Church feeling. It is just so far as the Church realises its national—nay, rather its international—responsibilities, so far as the Church leads the people to realise their sanctification and unity in "one Lord, one faith, one baptism, one God and Father of us all": it is just so far as she does this that she will inspire a worthy architecture.

In the Middle Ages the Church included the nation; now the nation includes many religious societies; and I believe that, so far as they are living, they will each require some differences of architecture parallel to the diversity of their religious life. But we must remember that in modern history, as in earlier days, architecture has been materially affected by economic conditions: the separation of trades and division of labour have forced the architect into becoming too often a mere designer, the builder into a mere organiser of labour. With the loss of craftsmanship runs, too, the loss of self-dedication and of a man's interest in his labour. It is not easy to feel the corporate spirit and interest in the work of others of a different trade, but it is this very spirit which those who have felt the benefit of a more cultured life and surroundings are bound to strive to bring to others. There is no reason why we should not learn to rejoice each in another's work; no reason why the mason should not rejoice in the beauty of the painter's work, or the painter in co-operating with the glass-worker; but until some spirit of unity is introduced in our daily life we cannot really ever again produce architecture of the greatest type on any national scale.

And before I close let me add one or two other words about our present church architecture. I am speaking to architects and not to clergy, but you can do something better than make plans if in your church work and church decorations you will set before us clergy the ideal of dedicating only the *best* and not the *most* to God's service. We clergy need to be reminded that we have a moral and spiritual obligation to "cut our coats" according to a small quantity of very good cloth, instead of a large quantity of poor material. If it is true that we write our history in the stones of our buildings, then it is necessary in these days of jerry-building for the Church to hold up a standard of labour and devotion amidst the squalid streets of our cities, which shall mark her to posterity as in advance of and not behind the times.

Let every art, according to our opportunity and means, contribute its share to the glorious whole. In former days the mason did not sit down and consider his mouldings complete until they were adorned and brought out into effective play by the skill of the decorator, nor was oak so precious but that in certain places it was thought suitable to glorify it by every skill of the artist. The needleworker and the jeweller, the silversmith and the blacksmith, the sculptor and the painter, all brought their offerings into the holy place, and no gift of genius nor diversity of trade but in some way felt the unity of the same spirit.

I have already taken more of your time than I have any right to do, but I hope that in what I have said I may have succeeded in some measure in reaching my goal—viz. rather to be "suggestive" than "instructive," rather to raise questionings than to answer them. I have sought to show that in our architecture history has stamped itself in an exceptional degree; and as we realise this we shall have added interest in our study of the present with its problems and difficulties, for we shall realise that we also are "making" history, and not only buildings for the use of this generation.

9, Conduit Street, London, W., *14th Jan.* 1905.

CHRONICLE.

ARCHITECTURE AND BUILDING REGULATIONS.

ADJOURNED DISCUSSION.

At the General Meeting of the 9th inst., the ordinary business concluded, discussion was resumed of the Papers read on the 19th prox.—viz. "Building By-laws, specially in Rural Districts," by Mr. Lacy W. Ridge [*F.*] and "Architectural Design and the London Building Act," by Mr. James S. Gibson [*F.*].*

The PRESIDENT, in opening the discussion, said that the Papers were quite distinct, and should be discussed separately. They would consider Mr. Ridge's proposals first and exhaust the subject before proceeding to Mr. Gibson's.

Building By-laws, specially in Rural Districts.

Mr. Lacy Ridge, continued the President, had given them a new and simple code which, so far as he could see, appeared to give the maximum of freedom with the minimum of restraint. He had dealt with matters that concerned the community at large, such as the frontage of every building from the centre of the road rather than from the adjoining premises; and with such matters as the disposal of sewage, and other sanitary questions connected with the inhabitants in particular. He hoped they should have some practical suggestions, so that the Council might be able to deal with the matter effectively; and if Mr. Ridge had anything further to say in elucidation of the subject, he was sure they would be glad to hear him.

Mr. LACY W. RIDGE [*F.*] said he ventured, rather with the view of preventing the discussion becoming an "experience" meeting, to move a proposition. They all knew, and were pretty well agreed, that something must be done, or ought to be done, with regard to these by-laws, which were extremely inconvenient to those who had to build in the country. The great thing was to find a remedy. The remedy he had suggested in his Paper was that the Local Government Board should get statutory powers from Parliament in order that they might reform the existing by-laws which at present they could not interfere with; and that the Local Government Board themselves should bring out by-laws, for which they would be responsible, and which could be enforced by the local bodies. It was impossible for an Institute like this or any other body to influence the hundreds of local councils throughout the country: persons who were obscure even in their own locality—persons whom they could not possibly get at and reason with, whereas they could reason with the Local Government Board, the central body in London. He therefore moved the following proposition: "That in the opinion of this meeting it is desirable that the Local Government Board should obtain parliamentary powers to enable it to reform the by-laws now in force in rural districts and in the smaller towns, with a view to the enactment of such by-laws, and such by-laws only, as are really required in the public interest."

Mr. EDWIN T. HALL seconded the motion. They were all interested, he said, in Mr. Ridge's Paper and were in entire sympathy with his suggestions. At present the rural by-laws were often suitable for urban districts only; and there was no question that they retarded the building of cottages, which was a big political question, because it was concerned with the retention of the rural population on the land. If this population could not be housed, how could they possibly stop there? They could not be housed on any commercial lines if they had to be provided with houses costing, say, £30 a year when they could only afford to pay £10. Therefore it was felt that the Government would listen with respect to views sent from the Institute when their object was to facilitate the erection of cottages to house rural labourers. Broadly, that was a principle with which he thought the Legislature must also sympathise. They in the Institute were all desirous that buildings should be sound and good, and, if they could afford it, of the best; but if people could not afford to live in a palace they must live in a hut. Mr. Ridge had suggested that the Local Government Board at present had no power of rescinding an approval already given. He was afraid that was so; but if they saw their way to adopt the resolution proposed, it would enable them to recast the whole scheme, and to look at it from a broader point of view. With regard to the detailed suggestions Mr. Ridge had made, there were one or two things which perhaps would need a little amplifying, or at all events some little varying. For example, they did not want to deal with the local authority as though it were a hostile authority; and, though they did not want to have to put their clients to the expense of supplying elaborate plans, he would venture to suggest to Mr. Ridge that when he was drafting his document he might meet the reasonable view of the local authority; and though they ought not to have to supply drawings of buildings, he thought it would be perfectly reasonable for them to submit a block plan showing where the building was to be erected. It would not put the architect to much trouble, and it would give the local authority a reasonable amount of information—if it were only to enable them to plot the site of the building on their local plans, so that they might have a record of the buildings that were going to be produced. Mr. Ridge, he thought, had made a slight mistake in suggesting that cottages should be dealt with in the same way as factories and assembly halls in rural districts. A factory must be subject to the special laws dealing with factories and the workers therein, because it was perfectly conceivable that in a village otherwise rural a large factory might be erected where 1,200, 1,400, or even 2,000 people might be employed. It was the practice now for many manufacturers to go into rural places and put up factories there. He thought, therefore, that they ought not to deal with the local authority in respect to factories and assembly halls as they should deal with them in respect of cottages for the working classes. They came under a different category. A factory should be amenable to all the laws which were necessary for the protection of operatives, and therefore owners should give more information in their case. The same remark applied, in a different way, to assembly halls. Where an assembly hall was erected, say, to contain 200 or 300 people it was perfectly right that the local authority should have jurisdiction over the exits and fire appliances attached to such buildings; and, therefore, in the case of those buildings it would be reasonable and desirable that a plan should be supplied showing such—in outline if they pleased, but showing how the exits were provided, and how the fire appliances were to be applied. With reference to Mr. Ridge's suggestion (B), that no building should be built within 20 feet of the centre of the road except porches or other projections, he thought the exceptions would be a mistake. It was perfectly reasonable that there should be for the public enjoyment a clear space of 40 feet—a road of 40 feet—and that there should be no porches or anything else projecting in front of that building-line. It would be following a very admirable precedent. In the Duchy of Lancaster Estates and Epping Forest, and in Enfield Chase, for instance, no road, he believed, could be made on those estates less than 40 feet in width. He would suggest that there no building should be permitted in front of the line which the building owner himself had laid down. With reference to the damp-course, Mr. Ridge said that it should be of slate. A certain class of people would interpret that by-law as the maximum and not the minimum. The jerry-builder might interpret it to mean one course of slate, which would simply mean that between every slate the damp would come up; therefore it would be only reasonable to say that the damp-course should be of two slates broken-jointed. Again, as to the disconnection of pipes, Mr. Ridge said that the sink waste should discharge into the open air before going into the drain. He thought they ought to say "over a trap gully," or the jerry-builder would put nothing of the kind, and they would have the sewer-gas coming up into the air. There were other things which were mere details, but when they were laying down anything like an enactment—and a by-law was akin to an enactment—they had to be accurate in details. They were, however, only the fringe of the subject. The actual broad lines Mr. Ridge had laid down were the sound ones: they gave a reasonable latitude to those who desired to do what was, after all, the aim and object of Mr. Ridge's scheme—viz. to enable cottages to be built. When that was attained, and when these powers had been obtained, they would find that the great difficulty of housing the rural population would be facilitated, and everyone would benefit—the architect, the employer, and the inhabitant, the rural labourer himself.

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* Journal R.I.B.A. 24th Dec. 1904.

Mr. LACY RIDGE explained that the by-laws he proposed were not put forward as complete in themselves, but as mere indications. He had read them as part of a Paper which he did not wish much to exceed half an hour. Had he read the by-laws with all the little refinements which were thought necessary, he should have kept the meeting a very much longer time, and he had said particularly that they wanted discussion and technical drafting. As regards factories, the Factory Acts were not mixed up with these by-laws, and therefore they would remain in force exactly as they were. With regard to projections, it was not a question that the road was to be made 40 feet wide, but that no one was to come nearer than 20 feet to the centre of the road. The road might only be 15 feet wide, and one could hardly say that a man should not have a covered way up to his house if he set it back 15 feet from the road. It would only be a building to remain so long as the authority did not think proper to make the road 40 feet wide. He had said that the powers as to dangerous buildings should be made to apply to new buildings. That, he thought, would justify the inquiry that Mr. Hall suggested with regard to the exits of a public building of any size, or of a factory. The authorities might fairly ask the man who was putting up such a building to show them the plans. It was the demand for deposited plans that was so objectionable.

Mr. G. BERTRAM BULMER [*F.*], President of the Leeds and Yorkshire Architectural Society, said he should like to say a few words on the subject, as it was one on which he felt deeply interested. He thought he could point to another view of the matter which would no doubt interest Mr. Ridge and Mr. Hall and other members interested in the question. He had had experience of the condition of things where rural by-laws obtained in the immediate proximity to borough by-laws. Now there was a class of the population whose wants and requirements had to be considered: those were the people who must either dwell in the rural districts or in the borough districts, and if any alteration of the rural by-laws could be brought about it would be very advantageous in enabling those boroughs to extend themselves, because it would enable the more or less poor man who could just afford to build a house at the minimum cost to erect outside the borough boundaries a house which would meet all his requirements, and which would not require to be controlled by the borough by-laws because of its more isolated position. It was the fact of country buildings standing within an area where there was plenty of land, and consequently not the same danger of fire, that should permit us to erect buildings of a lighter and less expensive character than those which were necessary within the borough boundaries. If he had made that point clear he thought he should have added one more reason why an amendment and revision of our rural by-laws should be made.

Mr. SYDNEY W. CRANFIELD [*A.*] said he should like to say a word in connection with the question of the desirability of having different codes of by-laws. Mr. Hall's remark as to factories being now frequently built in the country, to which the rural by-laws would not apply, would rather suggest that one code of by-laws would be sufficient both for rural and urban districts if they were properly framed and applied. There were many drawbacks in applying one code of by-laws to a rural district and another to an urban district. In the first place districts were constantly changing, and it was quite conceivable that a man who resided in an urban district might yet desire to build a country cottage, in which case he would suffer from all the irksome regulations of the urban district, notwithstanding that he was building a rural cottage. He thought that a code of by-laws might be framed to apply automatically to the many different kinds of buildings and districts. That was rather an important point. As to the many defects of the by-laws, one did not quite know where to begin and where to end. There were certain risks that did not, as a rule, vary in districts—such as fire risks, for instance—yet they saw in one district all sorts of regulations as to carrying party-walls through roofs, which did not exist at all in other districts. A fire was just as likely to break out in one suburb as in another; in the North of England as in the South; and it was easy to realise that if a party-wall was necessary to be taken through the roof in one case, surely it was in another. His principal point was the desirability of one code of by-laws instead of several, and rather than attempt to divide the country up into rural and urban districts, to discriminate between buildings.

Mr. W. H. ATKIN BERRY [*F.*] said that while considering the defects of the existing by-laws he hoped that in any effort which might be made to obtain a more reasonable code they would not overlook another point, which he thought was a very important factor in the difficulties and troubles they had to encounter—viz. the standing and qualifications of the officials who were responsible for the administration of those by-laws. He had come to the conclusion that a great deal of the difficulty and trouble which architects experienced in by-laws emanated from the arbitrary and entirely ignorant attitude of some of the officials called surveyors. They were in many cases men of no training whatever—sometimes scarcely more than promoted road foremen, yet those men were accepted by municipal bodies as competent authorities to advise them in dealing with the architect's plan and the client's interest, and they practically had the whole matter under their thumb. It seemed to him most important that, while pressing for an improved and more reasonable code of by-laws, they should insist on a better class of man to administer them.

Mr. J. DOUGLASS MATHEWS [*F.*] said that it was a very strange thing, to his mind, that within the London area a building was exempt at a certain distance from the road or from any other building, and yet in the rural by-laws no notice whatever was taken of the amount of land around the building. Surely if in London an open space of 30 feet round the house was sufficient to exempt a building from the Act, the same thing might apply to the country; and if there was a row of half a dozen cottages it would not be a serious matter if there were some kind of exemption. If something of that kind were to be adopted in rural districts it would save a great deal of the trouble now experienced. Attention might certainly be called to that matter. With regard to what the previous speaker had said about officials, he thought that officials administering the by-laws should understand that their business was to induce building and to make things as easy as possible, instead of throwing impediments in the way of those who wished to erect dwellings.

Mr. G. A. T. MIDDLETON [*A.*] asked if Mr. Ridge would take as an addendum to his resolution the following words: "and, if possible, to produce uniform by-laws for urban and rural districts."

It had been pointed out that there were such things as contiguous rural and urban districts, and that the relaxed conditions in the rural district would draw a large population from the urban district; and he assumed that before very long the rural district would in fact become an urban district, and would come under what were properly urban district conditions. How was that to be got over unless there was one uniform set of by-laws which automatically applied by means of the air space round the buildings?

Mr. C. H. BRODIE [*F.*] said that they were all at one with Mr. Ridge in hoping that a real practical outcome would result from this discussion. How that was to be brought about he did not see except—by slightly altering the maxim—that "hard cases make good law." They could certainly show a series of very hard cases which should help them to secure the abolition of the present by-laws in so far as they were arbitrary and interfered with what the best people in the kingdom were striving to obtain, that is to say, buildings for the people who could not pay extravagant rents. One of the chief reasons which would induce him personally to urge the Local Government Board to withdraw the present by-laws was the action of the various authorities in preventing a man from even commencing his building until the plans were passed. He was not altogether sure how that point arose. Some by-laws expressly stated that the building should not be commenced until the plans were passed. Other by-laws had not that clause; yet the authorities would not allow the building to be commenced until they had approved the plans. That acted very hardly in many cases, because those bodies sometimes met only once a month, and if by accident or from any other cause the plans were not in by a certain date, the building could not be commenced for a month. Such a regulation was absurd, as the authority had always the power to come in and stop the work at any moment if the building did not comply with the by-laws. The regulation was very oppressive in another way also; to his own knowledge the authorities refused to pass the plans, although they might be in perfect accord with the by-laws, because they were not in accord with the fad of some official or of certain members of that particular authority. For instance, he knew of a case in which an ashpit was required to be built. The reason for this requirement became evident at a later stage of the proceedings when the local authority required that a special means of emptying the ashpit should be provided, and after that they proceeded to flaunt in the architect's face the by-law which said that that special means of emptying the ashpit should be 13 feet wide at the least, and if the way to clear this ashpit was more than 100 yards long that passage way should be 16 feet wide. But that was not the end of it; they afterwards proceeded to argue that that land ceased to be the individual property of each house, and therefore you had to go back an extra distance from the fence, which was nearer to the house on the side of that 16-foot road. So that the by-law which said that a certain area had to be provided was forced up to mean that a certain area plus the width of the 16-feet-wide road had to be provided at the back of the house. And so on *ad infinitum.* The persons concerned in this particular case were desirous of going on with the building, but a question arose immediately: "You cannot go on with the building; the Council will summon you before the magistrates, because you begin without having your plans passed; you have no case. What is your answer to that? You are bound to be fined." The result was that a block of nine large shops had never been erected to this day, and the rates of that district were suffering to that extent. That was an absolutely illegal requirement. This particular case was so hard that he (Mr. Brodie) had made inquiries in the neighbourhood as to the experience of other people, and he had received a letter from an architect—a member of the Institute—from which it appeared that it had taken him five months to get his plans passed by that particular authority! Cases like that properly placed before the Local Government Board should help them very much to obtain the end that the meeting had in view.

Mr. GEORGE HUBBARD, F.S.A. [*F.*], said there was a general impression that it was impossible to begin the building until the plans had been passed by the local authority, but he was rather doubtful whether that was so in fact. The wording was that plans had to be submitted; there was nothing in the by-laws which required the building owner to get his plans passed before he could commence operations.

Mr. LACY RIDGE asked if the word was not "deposited."

Mr. HUBBARD: It might be "deposited," but there was nothing about having the plans passed. However, if the building were begun before the plans had been passed, it would be begun at the building owner's own risk. If he built in accordance with the requirements of the local authority they could not stop the work; if, however, he happened to make the unfortunate mistake that his client had made when building a billiard-room in front of the building line,* then the consequences were rather serious.

Mr. BERTRAM BULMER [*F.*], in support of Mr. Hubbard's point of view, said that he was acquainted with a case where plans for a block of semi-detached villas were submitted to a borough council, and they declined to pass them. The architect took up the position that they complied in every particular with the by-laws, and he went on with the work. Those semi-detached villas were erected and were standing there to this day.

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* Journal R.I.B.A. 24th Dec. 1904, p. 133.

The PRESIDENT asked if Mr. Brodie would tell them the wording of the particular by-law in the case he had referred to.

Mr. BRODIE said that, so far as he could see, there was nothing in those by-laws which would prevent anyone commencing to build immediately he chose. But his clients were advised by their solicitors that if they began to build the authority would summon them, and if they were summoned they would have no answer. There was another peculiar thing in the same case. One drain took the drainage of four houses, and the authority required him to make that drain 9 inches. He thought a mistake had been made in typing the letter, and on inquiry he was informed that it was not intended to be 6 inches, and it must be 9; and if it was not 9, the plans would not be passed. This happened in the borough of Kingston-upon-Thames, and he hoped that borough would take his remarks very seriously to heart, because such actions as he had referred to might account for the fact that Surbiton was growing enormously, and that Kingston, so far as appearances and his information went, was a-dying, and perhaps almost a dead town.

Mr. LACY RIDGE [*F.*] said that with respect to the Local Government Board they need not be at all alarmed; they knew all about it; they had had this business most effectually rubbed into them. The architects were not the only people who had been at them; in fact, comparatively speaking, as a body, architects had been rather lethargic in the matter. The only hope of getting better surveyors was to get bigger districts. There was no reason why a town of 5,000 or 6,000 inhabitants should be separated from the adjoining district. It was not a crowded place; it was not urban in the sense of wanting the kind of regulations that were wanted in London; and it would be very much better if the town and rural district went in together, and all had rural by-laws. That would to a great extent get over the difficulty of the country changing in character, which it did, of course, very gradually. His outlined by-laws were to a certain extent intended to meet the transition. With regard to not going on with buildings until the plans were approved, it was all very well to do anything irregular in this way, but it must be remembered they were not doing it on their own responsibility or at their own risk. The client had the annoyance of it; the client had the risk of it; and the client was very liable to think his architect was a fool if he got him into a row with the local authority!

The PRESIDENT then put the motion—viz. "That, in the opinion of this meeting, it is desirable that the Local Government Board should obtain parliamentary powers to enable them to reform the by-laws now in force in rural districts and in the smaller towns with a view to the enactment of such by-laws, and such by-laws only, as are really required in the public interest."

The motion was carried unanimously.

Architectural Design and the London Building Act.

The meeting then proceeded to the discussion of Mr. Gibson's Paper.*

Mr. WILLIAM WOODWARD [*A.*] said that, although Mr. Gibson's Paper was somewhat on the lines of Mr. Lacy Ridge's, it affected a very much larger and a very much deeper interest, insomuch as it affected the Metropolis. Mr. Gibson had given some very useful and interesting information as to the width of streets in various Continental cities as compared with the width of streets in London; but Mr. Gibson had omitted to mention Portland Place, with its width from building to building of 120 feet, which struck everybody as being of a magnificent width, but principally because of the comparative lowness of the buildings. Northumberland Avenue is 90 feet wide, and when one remembered Mr. John Gibson's building which was first erected in that avenue they all thought that that width was sufficient; but when the hotels and the clubs were built the 90-foot width appeared to reduce itself to very much less. It therefore followed, as Mr. Gibson had so properly urged, that it was not so much a question of the width of the street as of the height of the buildings which fronted that street. With regard to the Unter den Linden and the Champs Elysées, they must not be much affected with the width given there, because the width from building to building hardly formed an important part of the effect created when one looked through those avenues. On the matter of the percentage of area for a brick-and-mortar town, New York was a very important example. Architects in practice in London were constantly pulled up, and their difficulties were materially increased by the particular lines laid down by the Building Act of 1894 as regarded the open spaces connected with buildings. Mr. Lacy Ridge in his Paper had given an area for all buildings, and one could disregard the position of that area; and if public health was to be considered, so long as there was an uninterrupted area for light and air and ventilation, he ventured to say that that area should be considered, not so much with regard to its exact position in reference to the building as to the extent of the area of bricks and mortar upon the land. They would find then that very many difficulties which the Building Act of 1894 enforced would at once cease. Therefore he thought that Mr. Gibson's suggestion—which, as he understood, was the rule in New York—that there should be a percentage of open area with regard to building sites of the bricks and mortar upon those sites was a very important one for consideration, especially in view of the fact that there was looming in the distance a Building Act Amendment Bill. He was only sorry that Mr. Gibson's Paper had not been deferred a little longer, so that they might have had the pleasure of discussing in connection with it certain provisions of that marvellous Building Bill which was to be introduced by the London County Council. Mr. Gibson said that we had allowed the shopkeepers to determine the character of our street frontages. That was a subject they had often had before them. He had heard eminent architects say that it was monstrous that buildings should be erected in London which apparently stood upon plate glass, and that there should be large piers which apparently supported that which they did not support, and so on. He had, however, often put this query to himself: Supposing one of their big London drapers came to one of their most distinguished and most eminent architects, a member of the Royal Institute, and asked him to erect a building upon which he was going to spend £200,000, and that he wanted on the front of that building as much glass as possible. He wanted the building carried safely, but no pier in the front must exceed 2 feet 6 inches. Supposing he put it to him in this way: "If you will undertake to give me this, you shall be my architect. If you will not—if you carry out the traditions of the Royal Institute and will have your arches and your massive piers—I shall go to another architect." He had often wondered what would be the answer! He had spoken rather feelingly on this point, because he happened to be one of those unhappy individuals who had to conform sometimes to the requirements of tradesmen, and he could only say that to the extent of his ability he did provide all the piers and all the support he could possibly get out of his client. When he had done this, and provided a 2 ft. 6 in., or a 2 ft. 9 in., pier, then his client would ask if he couldn't take another 9 inches off! It was a very difficult problem. Mr. Gibson had made some reference to the use of steel work in buildings being recognised. When the Act of 1894 was passed the employment of steel in London was not so prevalent as it is now. The great object of architects in using steel was to reduce the thickness of walls. If they could employ steel and get rid of some of the thickness under the schedule of the Building Act of 1894, of course they could with equal strength provide very much thinner walls, which would be a very important factor in erecting a commercial building. With reference to public bodies who should be subject to the operation of Parts VI. and VII. of the Building Act—especially railway companies—he remembered saying at the Surveyors' Institution in discussing the Bill of 1894 that no body whatever should be exempt from the operation of the Act. There was no reason whatever why railway companies should be permitted to erect such execrable buildings as they did, in total defiance of an Act with which other people had to comply. He would make every public body, even the Office of Works, although Mr. Gibson exempted them, subject to those particular sections of the Act [A Member: "The London County Council?"] Yes, the London County Council also, who were the very first, in a case of Drury Lane, to do that which was wrong as regards their own Act. With regard to another important point raised by Mr. Gibson, as to district surveyors being practising architects, those who remembered the days of twenty-five, thirty, or thirty-five years ago would know that most district surveyors then were practising architects. He remembered perfectly well that their difficulties were then got over; they were helped and assisted in every way, because the gentlemen who then had to superintend the works were practising architects; they knew all the difficulties and all the trials connected with building in London; and without any derogation whatever from their public capacity and from their public duty, and without any detriment whatever to the public interest, in consequence, and only in consequence, of their being practising architects, they were able to assist the architect in getting his building satisfactorily completed, and thoroughly in accordance with all the healthful requirements of any particular Act. He hoped the Institute would insist, so far as it could, with reference to the new Act, that the district surveyors should, as far as possible, be practising architects. They had to contend with district surveyors who had had no practice whatever, who had had no experience of the difficulties in erecting buildings in London; they found them applying the Act of 1894 with all the narrow-mindedness and with all the faddism which permeated every ill-informed official in this country. He sincerely hoped the Institute would do its best to secure that district surveyors in future should not be so much under the thumb of Spring Gardens, but that they should be independent gentlemen, able to administer the Act, and able to assist, to the best of their ability, in the works which architects had to carry out. The following paragraph in Mr. Gibson's Paper was deserving of much thought on the part of everybody who desired improvement in the municipal control of this country: "Nothing can be more inimical to the interests of the public, to the growth of architecture, to the beautifying of our streets, than to have as interpreters and administrators of a complex Building Act persons who, although highly skilled in technical knowledge and masters of routine, are inexperienced in the erection of buildings." If Mr. Gibson could only prevent that, the Institute and all practising architects in London would have every reason to be grateful to him; and not only the architects, but their clients themselves would have every reason to say, "We have a municipal body in London thoroughly alive to the healthful interests of its inhabitants, thoroughly alive to the architectural beauties of the Metropolis, but also thoroughly alive to the fact that it is not to the interest of anybody—it is not to the interest of the architect or of his employer—that they should be, as they are now, governed to a very large extent by red tape."

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* "Architectural Design and the London Building Act."—Journal R.I.B.A., 24th December, p. 124.

MR. BERNARD DICKSEE [*F.*] said that as a district surveyor perhaps he might be allowed to say a few words. Concerning the question of open space in the rear of buildings he had always felt that the Act of 1894 was totally inadequate to provide the necessary open space, for the very good reason that it provided it in the wrong place; the Act required an open space at the rear of the building, of the full width of the building, and not less than 10 feet from front to back. There were, however, many buildings, many hundreds of them in his district, where there was not a single window lighted from that open space. He was referring particularly to the class of small buildings put up largely for the working classes: they were built with a front and back room and a rather long back addition. That open space at the rear of the building was no use at all, and to provide it the back additions of adjacent buildings were frequently crowded closer together, so making the open space between, intended to light the windows, of very little use. The Science Committee drew up some very good suggestions as to the open space. Those suggestions were based to a certain extent upon the New York provisions and to a certain extent upon the Philadelphia provisions, that is to say, that there should be an open space equivalent to a certain fractional area (whatever might be decided), of the whole site, that open space to be disposed in such manner as to afford sufficient means of light and air to the various windows. That would leave it open to the district surveyor to assert, if he thought so, that that space did not provide sufficient means of light and air; the matter would go before the magistrate, as it did now, and the district surveyor would have to prove his case. The main principle was that the open space should be elastic, not so much in size perhaps as in position. As regarded steel construction the Institute had sent up a very good set of suggestions to the County Council for the new Bill. The County Council in their wisdom—or otherwise—did not propose to insert these in the Bill at all, but they proposed to take to themselves the power to make regulations for steel construction. Not by-laws, it was to be noted, but regulations. If they were by-laws they would be subject to the provisions of the Act of 1894 for the construction of by-laws; that is to say, they would have to come to the Institute and to half a dozen other bodies, and to be finally approved by the Local Government Board after hearing any objections that might be lodged against them. But by using the word "regulations" in this new Bill, all that machinery would be set aside with a high hand; and these regulations, if made, would be made by the London County Council off their own bat, and they would have to carry them out as best they could. Some would have to build under them, and others would have the burden of trying to enforce them. That was a point to which the Institute should pay particular attention. He was afraid they were to a certain extent to blame, because the Institute tacked on to the end of their suggestions a suggestion that it would be better to have these in the form of by-laws, so that they might, if necessary, be altered without the necessity of an Act of Parliament. His view was that they should take form in the Act, even if there were power given to the County Council, with certain restrictions, to amend certain portions if amendments were found necessary. To turn to Mr. Woodward's attack on the district surveyors, he was sorry to say that in some cases there was some truth in his complaint. His own view was that the district surveyor was not intended to obstruct building, but to assist it. There were certain regulations to carry out, and to that extent his hands were tied; he could not help himself in many cases. But there were different ways of carrying out the Act, and if the district surveyor could show the architect that the Act could be complied with and the architect's views met at the same time, he was morally bound to adopt that course. As a district surveyor he wished heartily to endorse Mr. Woodward's and Mr. Gibson's suggestion, that the Institute should insist, to the utmost of its power, that the district surveyor should be a practising architect. He (the speaker) had given up his practice when he became a district surveyor, and he was bound to admit that being without practice had not assisted him in his work. He was obliged to do all he could to keep himself abreast of the times. If the Institute did not move very considerably at this present time matters would go from bad to worse. The London County Council made a mistake twelve or fourteen years ago in making candidates sign this condition engaging not to practise. The new Bill contained provisions that would entirely destroy the independence of the district surveyor. They proposed in the first place to exempt all their own buildings, and so remove any control that the district surveyor might have over them. They proposed to take to themselves power to alter the district surveyor's title to anything they thought fit; they proposed to abolish the safeguard that he had at the present moment that, if they did elect to pay him a salary, that salary should not be less than seven years' average fees; and they proposed to reserve to themselves the right to take action, in lieu of the district surveyor, so that they might walk over their heads—in fact, the district surveyors would be at the end of a string from Spring Gardens. He sincerely hoped that the Institute would do the best it could for the district surveyors in this case, and in doing the best it could for the district surveyors he was sure it would be doing the best it could for itself and for the public. It was of the utmost importance that the District Surveyor should be entirely independent of Spring Gardens, and therefore capable of carrying out his duties without fear or favour. They were not at the present moment quite, what Mr. Woodward said, under the thumb of Spring Gardens—they were not officers of the Council; but, if this Bill passed, he was afraid they would be, and then the law in London would be carried out in very much the same way as the law in the rest of the country was carried out. The proper solution of the difficulty was to assimilate the country law to the London law, and not the London law to the country law. Another point he should like to touch upon—viz. the importance of the provision of the frontage line in respect to architectural effect. Nothing could be more deadly dull than a uniform level line of frontage. The present Building Act dealt only with the general line of buildings, not with the frontage, what was known as the building line, at all. It had been held in the Courts that the present law only applied to the existing line of existing buildings. Those decisions were *Barlow* v. *Kensington Vestry*, in the House of Lords; the *London County Council* v. *Cross*, in the Appeal Court; and *Allen* v. the *London County Council*, also in the Appeal Court. In all those cases it was laid down that the line mentioned in section 22 of the London Building Act must be an existing line to existing buildings, and in the House of Lords, in the *Barlow* v. *Kensington Vestry* case, it was decided that the line did not extend beyond the last building. That, however, had not been the practice of recent years. The practice adopted very largely at Spring Gardens, and by some district surveyors, was that that line extended right along the street (according to those decisions it did not), and if that line extended all along the street they arrived at this absurdity. He did not know how many buildings would constitute a general line of building, but he should imagine three. If three would necessitate the conclusion that a street was commenced, he should imagine three would necessitate a general line of building. Imagine the case of a new street in which the building owner could, if he thought fit, build close up to the footway. He elected to set back, say, 20 feet, to put bays standing out about five feet. When he had put up three houses, the district surveyor or the County Council would say, "You have set up a building line. You must continue that line right through, and you cannot put up any more bays projecting 5 feet, because you are not allowed to put them more than 3 feet in advance of the general line of building." If that was the case, the man, in order to get his bays, must set back 2 feet more, and when he had another three houses he had set up another building line; and so on all the way down the street. Thus there would be receding series of three houses all down the street. It had often occurred to him that the Institute might do some good in trying to introduce into future legislation some provision for the building frontage, as distinct from the general line of building as now existing. He was thinking particularly of those blocks of buildings such as they saw round the parks, and in large numbers in the city of Bath, where there was a projecting centre and two projecting wings. As the law in London was at present interpreted, if it was proposed to put up such a block, the builder must start with the two ends and the centre block, or it could not be put up at all; because, if he started with a projecting block at one end of, say, two houses, and then had five houses in a wing, set back 5 feet, when he came to the central block he would be stopped; and if he got beyond the central block he would be blocked again at the other end, and have a one-eyed block of buildings. If the property owner were entitled to build throughout the whole of that site right up the street, why should he be stopped from building anywhere behind that line? His suggestion was that anyone who proposed to build a block of buildings of that or any other description should be entitled to bring to the district surveyor a block plan of what he proposed to do, and, having deposited it with the district surveyor, he should be entitled to carry out that scheme; and no arbitrary idea of a building line, or general line of building, should compel him to cut off his corner block. Perhaps in this new Bill, if the Institute could, they would see their way to get some such provision as that inserted. It was of the highest importance; for there was no point in the Act that had a greater bearing on architecture than the frontage line.

Mr. EDWIN T. HALL [*F.*] said that the subject Mr. Gibson had brought forward was of the very greatest interest, because of what they all knew was in the air, the new Bill which the London County Council were about to submit to Parliament. He hoped the Practice Committee would exercise the greatest vigilance in watching and studying the new Bill as soon as it was in draft. Judging from the synopsis of the Bill, most radical changes were to be proposed in building—changes which would accentuate the difficulties they had already to contend with. Before dealing with Mr. Gibson's Paper, he should like to draw attention to one radical change proposed in the new Bill—viz. that of the constitution of the Tribunal of Appeal. It was proposed that the architectural member of that tribunal should not under any circumstances be an architect practising in London; he might be a doctrinaire or literary architect, or he might be a gentleman practising in Liverpool, or Glasgow, or Edinburgh, but he must not be practising in London. He could not imagine any more inconvenient and troublesome provision than that would be in the administration of an Act of Parliament for the Metropolis, which was a province equal to some ten or a dozen of the largest cities of the kingdom. Coming to Mr. Gibson's Paper, while alive to the very great advantage of open spaces which would result from increasing the width of streets, they must be careful in enacting the minimum width of a street that they did not go from the frying-pan into the fire. One of the provisions of the new Bill was that no one should build within 35 feet of the centre, instead of 20 feet as now. In the synopsis there was no suggestion at present that anybody was to be compensated for the sacrifice. Imagine what it meant! With reference, however, to Mr. Gibson's suggestions, he thoroughly agreed with him that there should be an increase in the width of streets. Even in the near suburbs of London there should be a minimum width of 60 feet for main streets and main cross-streets—that is to say, streets which were, or were likely to become, great thoroughfares either from east to west, or north to south, and across bridges; and it would be greatly to the benefit of the suburbs in laying out new estates if the other roads were to be 50 feet instead of 40. That was not an unreasonable requirement. Personally, when he had laid out estates near London he had made his roads 50 feet; and he thought this width would be wiser in the interests of those laying out estates, even though it might curtail the ground-rents to be derived from the property taken as a whole. Beyond that they should not go. Mr. Gibson, he thought, suggested that there should be a 70-foot road, or something of that sort; but it must be remembered that if a road was made of an excessive width (and for a suburban street that was an excessive width) it meant, among other things, an immense capital outlay and an immense maintenance charge per annum to keep it up, for which the rates paid. If a street were unnecessarily wide it was a wasteful development. A road 50 feet wide was a good wind channel, and it admitted plenty of sunshine for the houses on both sides. It must not be forgotten that if they made wide streets, they must make havens for the pedestrian traffic. In London itself there should be power—with proper compensation to owners—to make main streets up to 100 feet in width. Beyond that such powers should not be given. Mr. Gibson, he believed, went even so far as to say that there should be a general re-alignment of streets in London. That was a counsel of perfection; but had he realised what it would cost to convert any main street in London to that width? Take Cheapside: he should, he thought, be quite within the mark in saying that it would take one hundred million pounds to widen Cheapside alone. They must be practical; it was no good for the Institute to make suggestions which were impracticable. They could not lay before the ratepayers any suggestion for a compulsory re-alignment which would involve London in a cost perhaps equal to the National Debt. With reference to heights, a suggestion was made that the heights were to vary with the widths of the frontages; but if the suggestion were that the height of streets was to be in relation to the widths of the frontage, the result would be higgledy-piggledy. There were buildings in places which had only 10 or 15 feet frontage, and say that those buildings were allowed to be 20 feet high, was it suggested that with a frontage four times that width, they would go four times that height? Where would be their broad treatment of architecture?

Mr. JAMES S. GIBSON said that that was not quite the point. The point was that under the present Act each owner of a building was allowed to erect and design the front of his building to his own ideas; that is to say, there was no continuity of design as between adjoining owners. If under the new Act a greater height than 80 feet to the wall-head were allowed, as obtaining an architectural uniformity, in narrow frontages there should be power given to enable continuous owners to collaborate with a design. Two 15-foot frontages could join together.

Mr. HALL: There was nothing to prevent that now. Any adjoining owners could do that, and constantly did it. No Act of Parliament is required to enable two men to agree. With respect to the height of buildings, though he agreed with increasing the width of streets, he did not think that the limit of the present Building Act was an unreasonable one for a city like London, where not only property was of great value, but the necessity of being within a given area was paramount amongst men of business. When it was remembered that New York permitted of buildings of 100 and 150 feet in height, why should they stand aghast and talk about their height being an unreasonable one? It was reasonable, having regard to what London is. With reference to railway companies, he thought the public ought to make a strong protest against their being exempt from the operation of the Building Acts. Their railway stations, with one or two exceptions, were a disgrace to London. Take, for example, Victoria Station, which was at present being rebuilt. For years and years the company who owned that station had paid a dividend of 10 per cent., giving to foreign visitors the most deplorable idea of the architecture of London on their first arrival here. What more miserable building could one see? Compare it with some of the foreign stations; compare it with the Frankfort-on-Maine Station, the like of which we did not possess in this kingdom. It cost, he believed, one million and a half English money to build, and was a fine architectural composition. It had nineteen parallel platforms, and an ante-platform between the booking-office and the gates, 100 feet at least in width, and on that ante-platform they could put probably five battalions of soldiers. The station was replete with every luxury and comfort. Arriving there one could not only refresh the inner man, but could have a bath and a dressing room. Why could they not impose upon the railway companies here an obligation that they should build respectable stations for the credit of the city? It should be compulsory upon them also to be amenable at all events to the Building Acts. With reference to the great difficulty of glass frontages, Mr. Woodward, he was afraid, had posed them all. If any one of them were offered such a building as that he mentioned, he did not think they would have the courage to decline it. But he thoroughly agreed with what the President had said in his opening Address. Some years ago he (Mr. Hall) put up a block of buildings in the City, and he insisted on putting large piers which he hoped were architecturally better than the glass. But the occupants of the building surrounded these piers with plate glass and show-cases, so that the piers did not show at all! But he had seen worse things in other cities. In Glasgow he had seen one building with the front all glass, and in Frankfort, again, he remembered a large place with a frontage of 60 or 80 feet that was glass from top to bottom; there was not a bit of wall in the whole frontage. Therefore, though it was very shocking, they were not the only wicked people in respect of that. With reference to the architectural treatment of streets, there again a great difficulty occurred. They would all like to see their streets noble in design; to see them vistas of beautiful architecture; but they must not forget that England had been probably made by its individualism. It was owing to that quality which had made England so great that the individual man wished to have a say in his individual capacity and in the carrying out of his building. They had to consider the genius of the people when they wished to make the streets as they are in Paris—every house alike, or every house part of one general scheme of design. That could be done under an autocratic Government perhaps; but with the individualistic Englishman Parliament would find great difficulty in passing a regulation insisting upon it. In conclusion, he should like to express the wish that the Institute would impress upon the Practice Committee the necessity of watching this new Bill, and would, if necessary, strengthen their hands. It was a Bill of the most drastic character.

Mr. WILLIAM WOODWARD [*A.*], referring to the clause in the Amendment Bill as to the constitution of the tribunal of appeal, said that representations had been made to the Parliamentary Committee as to the advisability of withdrawing that clause; but the Committee, it appeared, intended to insist upon it; so they might guess what the London County Council meant as regards frontage.

Mr. E. W. HUDSON [*A.*], speaking as to the height of buildings, said they had had a good many adverse remarks with regard to the drastic requirements of the London County Council; but he thought they were indebted to them in this respect, especially in new thoroughfares where they had limited the height of buildings. At any rate they had not allowed an American syndicate to have such a long lease of frontages in the Strand or Kingsway as would have enabled them to put up those monstrosities which were the bogey of every true architect. Nothing would have been more deplorable than to have structures like Somerset House and the churches adjacent dwarfed, crushed, and crowded by such structures as were to be seen on entering New York Port. With regard to open spaces being required between instead of behind small property, that was a very difficult matter to alter. In such neighbourhoods as Mr. Dicksee had spoken of, a great portion of the accommodation of the house or flat was given in the back additions; and he failed to see how a large space for air and light could be provided between them in narrow plots. Therefore they must accept the lesser of two evils, and be content to have the space at the rear, because it benefited the adjoining houses also which gave on to it. The only thing they could do was to prevent the windows in one back addition staring right into those of another, which in some places was the case. He should like to add his testimony to the help that they obtained even now from the district surveyors. Forty years ago things, however, were different, and architects were not looked after so sharply as they are now. They must sympathise with the district surveyors, knowing what risks they ran if they made a mistake or overlooked anything for which they might be pulled up at Spring Gardens. He did not know whether it would be possible for them to attend to the increased duties in connection with building in London if they were allowed to practise privately. In old times he believed one gentleman could not practise in his own district, but he got a brother district surveyor to father his buildings, and he did the same in turn in the adjoining district. Whatever was said as to the demand for commercial structures whose lower frontage was plate glass, he was sure all would strive to get a reasonable amount of pier, even if it were of steel actually in evidence.

Mr. C. H. BRODIE [*F.*] said he should like to break a lance in favour of the exemption of some great corporations from the provisions of the Building Acts. Mr. Gibson objected to these corporations being exempted, but at the same time he had put in a very strong plea for the use of reinforced concrete. Had it not been for the exemption of these great corporations from the provisions of the Building Acts, reinforced concrete would be an unknown material within the county of London. It was only the railway companies who were exempt from the provisions of the Building Act which had been able to afford us the sight of a building constructed entirely in reinforced concrete.

Mr. JAMES S. GIBSON [*F.*] thanked the meeting for the reception accorded to his Paper. He had prefaced it with the remark that it was concerned only with the artistic view of the Building Act; that is to say, he had taken up only those portions of the Act with which they as architects, having some sympathy with architecture as an art, were chiefly concerned. He dealt with construction only in so far as it had a direct bearing upon the artistic effect, and the effect of artistic designs of buildings. His object in reading the Paper was twofold. In the first place, he wished to point out, so far as he could, all those portions of the Act of 1894 which in his view were not conducive to the artistic development of architecture, so that in any action the Institute might take (and he hoped it would take strong action) those defects might be remedied in any future enactment. Mr. Woodward had referred to the fine width of Portland Place, 120 feet, and the comparatively narrow width, in relation to the height of the buildings, of Northumberland Avenue, with its 90 feet lined on each side with very high buildings. This emphasised one of his most important points —viz. the widths of streets were relative to the heights of buildings. Within a radius of a mile and a half of St. Paul's Cathedral—that is, within the business centre of London—it was desirable that the owners of property should be allowed to erect buildings to a greater height, relatively to the width of streets, than they should be allowed at a greater distance than a mile and a half. He divided the city into three zones: one, a mile and a half radius from St. Paul's, which would be three miles across, and within that area buildings could be erected of a greater height than the width of the street, all having a direct ratio, beginning with the narrow streets 40 feet in width, and going up to a width of 100 feet. Within the area of the business centre of London streets of 100 feet in width were necessary, and the direct evidence of that was in Kingsway. The new street, which the County Council had taken all this time to cut through the old congested area, was 100 feet wide, and that itself was a proof that streets 100 feet wide were necessary within the commercial centre of London. If streets were made 100 feet wide within the commercial centre of London, in his view it was right and proper that buildings higher than the widths of those streets should be permitted. The maximum height he advised was 125 feet. Outside this area came an area of another mile and a half—that is, a radius of three miles from St. Paul's Cathedral—and within this area the buildings should not be allowed, under any circumstances, to be higher than the width of the streets. Outside that area again, beyond three miles from St. Paul's, no buildings should be as high as the width of the street. The result would be that more aëration would be secured the farther one got from the centre; and future difficulties of acquiring property to widen streets would be very greatly lessened, because we should not have buildings so congested as they are under the present Act. It appeared to him that the chief defect of the whole Act was that one regulation was made which it was fondly imagined would apply to all circumstances. As to the question of the realignment of the main traffic lines within the commercial centre of London, there was not the slightest doubt that, whatever it cost, it would have to be done. At the present time the difficulty of dealing with public improvements was that there was no scheme or method upon which those improvements were undertaken. They would chop off a bit at the corner of Cheapside because a few 'buses stopped there every morning; they would chop off a little bit on the south side of Piccadilly, and set back the frontage line about 6 feet; and so they would go on chopping off little bits; but they would never apparently have any scheme to deal with the traffic. Whatever those improvements might cost, the cost to the community now was immeasurably greater than any capital cost which it would take to work out the whole realignment of the commercial centre of London. With respect to steel construction and reinforced concrete, they were questions which it was in the very nature of things necessary for the County Council to deal with. Steel construction was known, and used largely, and great experience was obtained in the use of it, in America practically, long before the time of the passing of the 1894 Act; but it was apparently necessary to have enormous fires in Baltimore to bring it home to the officials at Spring Gardens that steel construction, properly applied, was a safe and sound form of building construction. The County Council made no provision for any other form of construction than that of buildings of bricks and stone and similar materials, which might be perfectly satisfactory, and were perfectly satisfactory; no provision was made for advancement, or for taking advantage of any new materials that might be discovered or used. His point in regard to steel construction was that its adoption altered the whole complexion of the regulations of the Act dealing with the relative areas of solids and voids. That was the whole point he wished to make. If they admitted for a moment that it was possible safely, so far as the public were concerned, to construct a building of steel and concrete, they immediately changed the whole character of the relative areas of points of support. Ritz's Hotel in Piccadilly was practically a steel building, yet it must be cased round with granite and stone and brick carried on steel girders—weighting those girders for no purpose whatever—simply to comply with the Building Act which only provided for a brick wall. Any county council, or any other authority, which had the public interest at heart, ought not to be allowed to continue to enforce by-laws of that nature, which were practically obsolete. The strongest point upon which the Institute, as an institute, should concentrate its efforts, when it came to deal with the proposed amendments of the Building Act, was that point of retaining the services of district surveyors who were practising architects, and to do everything they possibly could to lessen red tape and mere officialism. If they did that, they would go a long way towards getting better architecture, and more freedom to work, and the public would not suffer at all.

The PRESIDENT said that at that late hour he would refrain from making any remarks on the points which had been raised, though he was much tempted to do so. He was greatly in sympathy with much that Mr. Gibson had put before them. There was one matter, in connection with his point as to the three zones, which he wished to draw attention to, viz. the overcrowding in the suburbs, which was increasing to an alarming extent. The extension of the tramway system was causing the owners of small properties, houses with perhaps five or six acres, to move further away, and the ground was at once caught up by the speculative builder and covered with as many houses as he could cram on to it. That was a crying evil, and something should be done to regulate the amount of building in the suburbs—for the farther away from the inner zone the wider the spaces should be and the lower the houses, so that there might be as much air drawn towards the centre as possible. They had had a number of very valuable suggestions, and he hoped that they would come before the Practice Committee and be of assistance to them in placing the matter before the proper authorities.

Mr. DOUGLASS MATHEWS said that a Committee was sitting at the present moment to consider amendments, and the Council would take steps to bring all the suggestions made that evening before the County Council. The Committee would take good care that they were urged at the proper time.

Building By-laws in the South African Colonies.

Mr. Crawford Lindesay, A.M.I.C.E., writes:—

I venture to express great sympathy with the objects of the meeting held under the auspices of the Institute with reference to a reformation of by-laws controlling building operations in rural districts and small towns.

I have lately been engaged for a period of twelve years in the Colonies of Natal and South Rhodesia as a municipal engineer; for ten years I was assistant borough engineer at Durban, Natal; and two years as town engineer at Salisbury, South Rhodesia. During that time I have had to approve of many hundreds of building plans, and at first realised the difficulties of architects and builders where they were delayed in commencing operations until plans were passed by the Building Committees. When delays inconvenienced builders &c. in Durban, we gave the building inspector and chairman of the Building Committee special power to give authority to commence, subject to the approval of the Building Committee, which passed plans *one day per week*. As these meetings were conducted weekly, it was not often necessary to exercise these special sanctioning powers. In Salisbury, of course, the conditions were those of a small English town so far as building operations were concerned, and there we found that the interests of the town could be amply safeguarded by leaving the approval of plans which were in conformity with the by-laws in the hands of the town engineer and one member of the Council. In cases where I thought it advisable, I referred the plans to the "whole Council Committee," but that did not often occur.

I think it would be inadvisable to allow buildings to be commenced without sanction, even if for no other reason than that it encouraged people to evade the by-laws; and the building inspector should be most particular about conditions of subsoil and foundations, as well as damp-courses. I think professional men too often forget that very many plans are submitted by ignorant builders and amateurs, and the regulations apply to all. In the Colonies of South Africa our building by-laws are based upon *improved* English practice.

Caversham Schools Competition.

The following correspondence has passed between the Secretary of the Institute and the Oxford Education Authority:—

31*st December* 1904.

Dear Sir,—

Caversham Schools Competition.

I am directed to draw the attention of the County of Oxford Education Committee to the conditions of this competition, and most earnestly to urge a revision in the following particulars:—

The amount of work entailed in submitting the competition designs is far too great; much of it is unnecessary, the assessor not requiring such elaborate drawings whereon to base his decision. Clause 4 (iii) could be considerably simplified.

Clause 10 would naturally be found unsatisfactory by any competitor. I am to urge your Committee to guarantee that the author of the first premiated design shall be employed to carry out the work, provided there is no valid reason to the contrary.

The commission of 5 per cent. should only cover the services stated in the Schedule of Professional Charges issued by the Institute, a copy of which I enclose. If it includes travelling and out-of-pocket expenses, attendance before Local Government Board inquiries, and the copies of plans as laid down in the penultimate section of clause 14, it is difficult to see how an architect of repute could make the work remunerative. In any case he would obtain very inadequate payment for his services.

The section of clause 14 relating to all measurements, bills and accounts being handed over to the Committee might with advantage be omitted from the conditions.

I am directed most respectfully to lay stress on the advisability of the conditions being modified, as the competition could not fail to be disappointing if conducted under the conditions as at present drafted.—I am, dear Sir, yours faithfully.

W. J. Locke, *Secretary.*

The Clerk, Education Committee, Oxford.

[Reply.]

5th January 1905.

Dear Sir,—I have to acknowledge the receipt of your letter of the 31st, and to tell you that up to the present time the following modification has been made: "that a detailed specification separated under the several branches of the building trade need not be sent," and that competing architects have been informed accordingly.—Yours truly,

S. Stallard.

W. J. Locke, Esq.

If this is all the modification that the Committee intend to make in the conditions, it would be well for members of the Institute to refrain from competing.

French Schools of Art.

The deputation from the Glasgow School of Art, consisting of the chairman, Mr. James Fleming, with two others of the Governors, Mr. W. Forrest Salmon [*F.*] and Mr. John J. Burnet, A.R.S.A. [*F.*], and the headmaster, Mr. F. H. Newbery, appointed to visit and report upon the working of some of the more important of the national and municipal schools of art in France, have just issued their report in pamphlet form.

In Paris the deputation visited (1) the Ecole Nationale et Spéciale des Beaux-Arts; (2) the Ecole Nationale des Arts Décoratifs; and (3) the Palais du Trocadéro. Introductions to the various institutions were obtained through the French Ambassador in London, M. Cambon.

The Ecole des Beaux-Arts is directly controlled from the Ministry of Public Instruction of the Fine Arts. The teaching administration is vested in a director and the body of professors known as the Superior Council. This institution is practically the university of art, not only for France (although the educational facilities there afforded are primarily for Frenchmen), but for the whole world. All nationalities are represented on the roll of students. Male and female students are alike eligible for admission. Instruction throughout is free, and there is no registration fee. No students above twenty-five years of age are admitted. Entrance examinations are held twice yearly, and are very exacting. Should the admission work gain acceptance, other proofs follow to be executed before the candidate is permitted to be enrolled. Architect candidates have to submit to a test of their powers of design, and have further to execute a work in drawing from the antique and ornament; modelling; calculations and logarithms; arithmetic; algebra and elementary geometry; descriptive geometry applied to architecture; descriptive geometry; oral proofs of history knowledge, and a written composition. M. Henri Mayeux, architect, gives an annual course of lectures on the decorative arts to students of the school. There are three ateliers for painting, three for modelling, and three for architecture. Each atelier receives visits from a professor three times weekly. The teaching comprises courses of study, exercises set by the professors, examinations, and competitions. There are eighteen distinct courses of study, and the programme for these courses is determined by the Superior Council of the school and approved of by the Minister. The whole system of teaching and study is based upon examinations for awards, competitions for prizes, and the submission of specified work for prizes and bursaries. All judgments are made by juries special to each section of school work. The juries are chosen by the professors among themselves. The architectural school is divided into first and second courses. A diploma of architecture is granted to students who successfully complete the work of these two courses. In connection with the school there are:—(1) A museum of casts (all styles and periods); (2) a museum of copies of pictures of the Old Masters; (3) works that have obtained the Prix de Rome; (4) a collection of works that have obtained medals; (5) material for study of anatomy, geometry, stereotomy, physics, chemistry, and construction; (6) objects of art given or bequeathed to the school; (7) library.

The Ecole Nationale des Arts Décoratifs, in the Rue de l'Ecole de Médecine, is a school for the application of fine arts to industry. The institution is housed in a building formerly a school belonging to a religious order. Its classes are open day and evening. Students under thirteen are not admitted to the day classes, nor under fourteen to the evening courses. Candidates for admission submit either a study of ornament in light and shade, a modelled study, or an exercise in architecture, according as they wish to be enrolled in either one of the courses of drawing, modelling, or architecture. Should any one of these proofs be considered worthy, the candidate is admitted at once to the superior division of the course. Any student admitted into one particular section can at the same time attend two other sections, as room permits. All instruction is free. The subjects taken are drawing, modelling, geometry, plant study, architecture, mathematics, ornament and architectural composition, history of art, perspective, and anatomy. There are special studios for ornament applied to industry (painted and modelled), as also a special atelier for architecture.

Other schools visited and reported upon were the Ecole Nationale des Beaux-Arts at Lyons; the Ecole Nationale des Arts Industriels at Roubaix; and the Ecole Municipale des Beaux-Arts at Lille.

In France education is free, but no student may enter a school of art until he has passed an entrance examination. This examination demands preparatory instruction, which is provided for in special preparatory schools. The entrance examination is such that candidates applying must exhibit both skill and earnest endeavour in order to obtain a pass. The ordinary French student is compelled to follow a definite and rigorous course of training.

The gratuitous instruction that everywhere prevails may partly account for the organisation and methods to be found in the French schools. The French people take art and art instruction much more seriously, says the report, than is the case in Scotland.

The deputation feel they have gained an experience of work and methods which should be of great service to the Glasgow School of Art. It is hoped that by the aid of the continuation classes of the School Board and by the establishment at some early date of a preparatory school the thorough preparation of students for the Glasgow School of Art may be assured. The accommodation for work afforded by the Glasgow School of Art compares favourably in many respects with that existing in the French schools. The general excellence of the work of the Glasgow School of Art in drawing and painting will, the report states, bear comparison with that produced by the Continental schools; but in architecture, advanced designs, and figure composition there remains much to be accomplished in Glasgow.

Alexander Thomson Memorial Studentship.

This Studentship, value £60, competed for triennially, is open to architectural students between the ages of 18 and 25 years, residing in the United Kingdom, and qualified as described in the Deed of Trust. The Studentship is awarded for the best set of Drawings submitted in accordance with the subjoined programme. There is a further prize of £20 for the set placed second, should the number of the competitors and the quality of the work submitted warrant an additional prize being given.

The subjects for the 1905 competition are:—

I.—A Study of a Classic Building. Carefully drawn and detailed, preferably with shadows projected. If specially prepared for this competition, the subject to be the Monument of Lysicrates, drawn in elevation, showing four columns, with necessary sections, and with shadows projected in monochrome or colour, to a scale of half-inch to the foot; details to be half full size. A suggestive Restoration is given in D'Espouy.

II.—Design for a Cascade and Portico in a Public Park. Situated on a rocky and wooded slope that has a gradient of one in eight, and falls towards the south. There is a stream of water fifteen feet wide that may be dammed and distributed to suit the composition. The Cascade will form the centre piece, and will be flanked by Porticos that may terminate in Pavilions. The whole composition shall not exceed 300 feet in breadth, by 250 feet in depth. The formal lay-out of the Garden, with Terraces, Stairs, Bridge, &c., to be shown; and within the conditions given, the disposition of the parts is left at the discretion of the Competitor.

The Drawings required are:—(*a*) A General Plan, scale $\frac{1}{16}$ inch = 1 foot; (*b*) Plan, Elevation, and Section, scale $\frac{1}{8}$ inch = 1 foot; (*c*) Detail of a Part, scale $\frac{1}{2}$ inch = 1 foot; (*d*) Perspective Sketch. All on sheets 40 × 27 inches. A, B, and C, to be drawn in ink, and may be tinted. The shadows to be projected at an angle of 45 degrees. The perspective may be rendered in any medium. Besides these the Competitor must submit:—(*a*) Drawing from the round, shaded. (*b*) At least two sheets of Architectural Sketches, preferably not executed specially for this Competition.

The last day for sending in drawings is the 28th December 1905. The successful competitor is required to go on a sketching tour for three months, in order to pursue his architectural studies. The competitor placed second, should this prize also be awarded, is required to spend a period of three weeks in making drawings from the reproductions from Classical Buildings in the British Museum London, or elsewhere, as may be arranged to the satisfaction of the Trustees.

The Trustees of the Studentship are the Council of the Glasgow Institute of Architects, and full particulars may be obtained from the secretary, Mr. C. J. MacLean, 115, St. Vincent Street, Glasgow.

The late Arthur Edward Perkins [*F.*].

Mr. A. E. Perkins, whose demise took place on the 23rd December 1904 after a long illness, was the son of the late Mr. Arthur Perkins, of Worcester, the architect under whose direction the general restoration of Worcester Cathedral was carried out. The elder Perkins was a pupil of the late Mr. Thomas Rickman, the well-known architectural author. Mr. A. E. Perkins was educated at Mr. King's school at Worcester. On leaving school he entered the office of the late Sir Gilbert Scott, R.A., where he remained for some years. Afterwards he was with Mr. T. G. Jackson, R.A., as assistant, for fourteen years. In later years he had a small private practice, chiefly in domestic work. He was elected a Fellow of the Institute in 1901. Mr. Perkins was well known in his profession as a perspective artist, in pencil, ink, and water-colour. Many of his drawings of buildings by various architects have been hung at the Royal Academy, and have been reproduced in the professional journals. His happy disposition and genial manners made him many friends by whom he will be much missed. He leaves a widow and two children. S. P. REES [*A.*].

NOTES, QUERIES, AND REPLIES.

The Architects' Law Reports (Illustrated).

From Mr. ARTHUR CROW [*F.*]—

Referring to Mr. Langton Cole's appreciative notice of the first volume of this publication in the JOURNAL of the 24th ult., may I be allowed to say that, so far as practicable, the suggestions he makes for future numbers will be adopted?

Beginning with No. 6, the proposal to add a few blank pages for press cuttings, memoranda, &c., has been embodied in the second edition of Vol. I., which is now in the press.

With regard to Nos. 2 and 3 there is no reason why the name of the "winning party" should not be added where there is any ambiguity in the matter; but the publication of the amount of the taxed costs, if ascertainable, would not be pleasant reading to either party, and might be resented.

The size of the pages was only decided upon after very mature consideration. A reduction in the width of the margins would spoil the appearance of the work, which is now uniform with the R.I.B.A. JOURNAL. Moreover, the "Accumulating Index" in its present form would be impossible, as it already encroaches considerably on both margins. It is hoped that the present size of page will allow of additions being made to these subject indexes for at least five years, when they will be transferred *en bloc* to a quinquennial digest. The illustrations, which, so far as can be gathered, will form one of the most attractive and useful features, could not be produced to a proper scale in a smaller work.

In this connection an expression of opinion would be welcomed as to whether "art paper" should continue to be used for the body of the work or only for the illustrations, an unglazed paper being substituted for the letterpress.

The introductory matter, which Mr. Langton Cole thinks should be excluded, is not intended to be bound up, as will be seen by the paging; but in the writer's opinion a work which merely records judicial decisions, however useful, does not go far enough. The authoritative ruling as to the interpretation to be placed upon a particular enactment frequently shows that the law has failed in its purpose, or is unjust, inequitable, or unduly irritating and irksome in its operation, and that it needs amendment. Surely no more suitable place can be found for the consideration of such matters than in a journal where the decision is recorded. The present intention therefore is to invite architects and others to contribute articles on such important questions as the means of escape from buildings in case of fire, the height of buildings in relation to the width of roads, the provision of air spaces about buildings, the reasonable modification of building enactments in rural districts, and other subjects of general interest to the profession. By this means it is hoped to increase the usefulness of the work and, with a more extended circulation, to reduce the price of the quarterly parts to half-a-crown.

The Great Baltimore Fire.

From Mr. R. LANGTON COLE [*F.*]—

May I call the attention of members to the Report on this fire which has been issued by the British Fire Prevention Committee? It is well worthy of careful study, and seems to bring out, broadly speaking, the following points:—

1. The importance of preventing the access of fire horizontally, *i.e.* through ordinary windows.
2. The desirability of making all fittings as non-inflammable as possible.
3. The value of concrete as a protection to steelwork, and the unsuitability of terra-cotta.
4. The superiority of good bricks over all other fire-resisting materials.
5. The value of sprinklers, internal and external.

The Report is well illustrated, and has an excellent map, and can be consulted in the Library of the Institute.

THE ARCHITECT'S RELATION TO THE BEAUTIFUL.

A Letter to an ex-Pupil who failed to pass in Design in the recent Final Examination.

22, *Fawcett Street, Sunderland: 27th Dec.* 1904.

DEAR MR. ——,—You made some remarks in a recent letter, which I think I did not find time to reply to, on the mental process of design as you yourself practise it.

I think with you that no rule can be laid down. Each man must take his own way, and the same man will not always take the same way.

Designs themselves differ widely as to their conditions and requirements. In most the practical is of paramount importance, and the æsthetic is quite a subordinate consideration. But in some few cases the æsthetic overrides the utilitarian. The Queen Victoria Memorial in St. James's Park, by Sir Aston Webb, is a design of this last exceptional type.

To my own sentiment no commission could

be more sickening than to be called on to design a construction for purely ornamental purposes. I should find small pleasure in designing an *Arc de Triomphe*. It seems to me an essentially inane object. But if it were made not merely *that*, but to serve some definite use beside, as, for example, to carry an aqueduct, or canal, or viaduct, or as the gateway of a fortified city, or even as a landmark, the sickeningness of the task would disappear, some excuse, however lame, being found to justify it.

The monuments of antiquity are often sublime memorials of the stupidity of their builders. If the ancient architects had understood how to make iron pipes they would never have gone to the enormous expense of aqueducts in most cases where those mighty works were done; and had they been so far advanced in the chemistry of explosives as the moderns, their picturesque city walls and castles would never have frowned on mankind.

The province of architecture is, however, not purely materialistic, but it is called to minister to man's spiritual as well as material needs.

The truest poet is he who invests with spiritual charm the common life of men; and they are rightly grateful to him. Thus the Scotch appreciate highly what Sir Walter Scott did for their land, and still more what Burns did for their peasantry. The Galloway people owe an immense debt to Stevenson and Crockett. The folks of Kirriemuir can never repay Barrie for services rendered by his writings; and the modern Presbyterian Church owes to Ian Maclaren no less an obligation than the English Church owes to Kingsley and others. Thomas Hardy has made the Dorsetshire commons classic, and Baring Gould has done for the Devonshire moors and the Essex broads the same inestimable turn.

The mediæval architects made the cruel, hard Norman rule beautiful by its castles and cathedrals. It was their province to meet the practical needs of their time, and to invest all their efforts with the subtle influence of art. Their gargoyles were more than mere water nozzles; their windows were more than mere apertures for light; their groined roofs were more than mere weather-excluders. And had they been called to design a coastguard station some of the dreaminess of their natures would have found expression somehow; and the product, while fulfilling all the actual needs, would have had a spiritual expression too.

The intense practicality of our day tends more and more to swamp the dream nature, so that we modern architects neglect it. Like Martha, we are "anxious about many things." The old-world architects were more sentimental—more like Mary—they had chosen the "better part," the spiritual side of their calling.

Reverting now to the question you raise as to methods of design, I would put it to you that it is a question of how to find room for the spirit of art to live and breathe among piles of brick-and-mortar. The question, I think, really is this: Which shall reign, the *brick and mortar* or the *soul*? A good deal depends on the way in which the architect proceeds to answer that.

In my judgment it is a bad thing for an architect at the outset of his designing to aim at too immediate definiteness.

Let him use a fine soft pencil and play with it, making lines so faint he can barely see them. The soul and fancy can thus be wooed to enter in when hard, definite, precise beginnings would scare them right away.

The best artistic productions are evolved from the world of the intangible. The more tangible you make your design the less æsthetic it is. Hence the outside of even a cathedral in broad daylight loses of poetry what it gains of actuality.

> If thou wouldst view fair Melrose aright,
> Go visit it by the pale moonlight.

A great principle of artistic evolution is that *beauty must be developed from its source, and must not be separated from either its source or destination.* It must be suggestive, without absolute beginning or ending, being related to the infinite, the spiritual, the mystical.

However earnestly resolved the *planner* may be to meet all practical needs, he should have, underlying that motive, the secret spring of yearning for the beautiful. Combinations, proportions, perspective effects, and æsthetic properties generally, should lie, as warm rich soil, at the root of all his practical work, and send up its juices through the dry crust of uses in every possible way.

There is such a thing as architectural Pharisaism, consisting in the minute attention to practical details, to the utter neglect of æsthetic opportunities.

And I can well imagine the great Master Builder saying to such sticklers for constructional propriety, and sanitary quips and cranks, "These ought ye to have done, and not to leave the other undone."

The "weightier matter" of architectural law and order is, after all, *the spirit of grace and fitness.*

You know me well enough as a practical architect and engineer, to exonerate me from any crazy, impractical, ultra-Ruskinesque sentimentalism, too childish and silly to commend itself to an age like ours, an age of Titans.

But you would mistake me utterly if you thought my insistence on a perfect knowledge of the science of construction—which I may call the *anatomy* of architecture—was intended to be emphasised at the expense of the spiritual element of our vocation.

You unfortunately fell into that error in making the practical arrangements of your coastguard station perfect, and letting the æsthetic element go hang.

I fear some of my advice to you on this subject before your examination came off may have been partly to blame for this error, though I did not mean it so.

Under the earth's crust there is a substratum of fire and water which leaps forth to light in exceptional volcanoes and frequent springs. So beneath the cold exterior of the architect's practical mind there should always be an immense reserve of artistic energy, seldom if ever obtruding itself in extravagant manifestations, but animating and refreshing all his designs.

Take, for instance, a problem on which my mind is just now being bent, viz. the construction of cheap artisans' dwellings. The prose is patent and palpable at first blush—too grossly so. If that prose element were allowed to absorb all the mental domain, I should produce a hideous row of miners' huts and hovels.

But I find my mind dwelling on rusticated fronts cast sectionally in concrete, on projecting bay windows under broad eaves with their shade and effect of snugness and comfort, on chimney-stacks picturesquely breaking the sky-line, on contrasts of solid and void, on surface and texture and colours of materials in agreeable contrast, on a general effect of brightness, piquancy, daintiness, ruralness, invitingness, *homeliness* ; and at the same time my common sense assures me if these qualities can be implicated in a *cheap* cottage they will popularise it, and create a demand for similar houses, and make the builder's enterprise *commercially* succeed.

If my clients were like some I could mention, and if I were to name to them the artistic considerations which thus underlie my plans, they would take fright and say : " Confound your art fads ! give us what we want—shelter for these *human pigs* at the lowest rate you can ! "

But I don't pin my architectural heart on my sleeve. My best motives are my own private concern, while I take good care not to neglect the sanitation, comfort, and convenience of the people I am catering for.

Restaurateur Meng's famous wedding cakes have their ingredients skilfully compounded to tickle the palate (the grosser nature), while externally they are made of artistic forms pleasing to the less gross visual organs of sense.

The Yankee name for an architect, " house artist," is right. It hits the nail right on the head. Your Yank knows what he is talking about when he invents names and insists on calling spades " spades." Utilitarianism prevails in Yankeeland. But the æstheticism of human nature, like original sin and like murder itself, will out. Hence the demand for " house artists " who know not only and care not only to construct the architectural skeleton of steel or timber, but who clothe it with its covering of marble, granite, stone, or shingle, as the opportunity affords, and produce effects at once *fit* and *charming*. I loathe the conception of an architectural designer as a mere ornamentalist. Presence of abundant ornamentation, as you know, may coexist with vulgarity, and the absence of ornamentation may characterise designs of exquisite taste and charm.

The tailor-made dress of a lady, with its severe lines and dainty cut, combining comfort and fitness with a high sense of the beautiful, will illustrate my conception of what we architects should aim at.

Proportion, propriety, good taste, can make themselves felt like a good conscience. In these respects the good architect infuses his feeling into all he does. His plans are *plots* for the introduction of the beautiful into common life. From the very outset he is beset with practically imperative lower considerations, which he too often suffers to take all the go out of him. He too frequently submits to become the mere tool of these practical orders, instead of *plotting* to make them subserve his higher artistic motive.

Now I think I have said enough, and that if I had said half as much before you made that ghastly coastguard station front, you would have made an effort, without increasing cost, to express a feeling of picturesque refinement in your *tout ensemble* which would have "caught on."

You will shine all the better next time, I trust.

I shall be glad to learn what other subjects (if any) you are relegated in.

Had I been an examiner, though I should not have admired your elevational effort (!), I, knowing you could do much better, should certainly not have relegated you in design for that unfortunate surrender of your soul to ugly prose.

Yours faithfully,
FRANK CAWS.

ALLIED SOCIETIES.

THE MANCHESTER SOCIETY OF ARCHITECTS.

Architecture at the Victoria University, Manchester.

Responding to the toast of the Victoria University of Manchester, at the Annual Dinner of the Manchester Society of Architects on the 16th ult., Vice-Chancellor Hopkinson, K.C., said he had been delighted with the work that had been accomplished as a result of the establishment of the Chair of Architecture at Victoria University. It was attended by a number of earnest students, and was working without any friction amongst the various other branches there. He congratulated the Manchester Society of Architects, and singled out for special mention the efforts of their President (Mr. J. W. Beaumont) and the Hon. Secretary (Mr. Paul Ogden) for the way in which they had supported the movement, and so enabled the younger members of the profession to obtain the best possible education. Their action he characterised as unselfish and high in its ideals. He could not help thinking that the working together of the profession and the University was an indication that they were recognising what lay at the root of all real artistic progress in affording opportunities to those who were engaged in theoretical pursuits to bring their studies to some practical result. He went on to remark that he did not think it was impossible to have great artistic productions in Manchester, and referred to the numerous fine buildings that already existed in the city. He was glad that they recognised that by the profession and the University working together there was a future for English architecture. He looked hopefully to the future of the Chair of Architecture as a result of the union of those who were engaged in theoretical study, the study of letters and the study of history, and the closer connection between those who were engaged in the Universities and those who cared for the highest ideals and advance of their profession.

GLASGOW INSTITUTE OF ARCHITECTS.

The Council of the Glasgow Institute of Architects have addressed the following letter to members of their Institute:—

115, Vincent Street, Glasgow: 22nd December 1904.

Dear Sir,—The Council of the Institute has had under consideration the apparently increasing prevalence of valuable presents being given on the occasion of the laying of foundation-stones or formal opening of buildings by the architects concerned to those officiating, and even, in some cases, to their wives or relatives.

In such circumstances, and where the importance of the building warrants it, the presentation of a trowel or key by the contractors is often expected, and the action of the architect in co-operating in such cases, either financially or by designing and selecting the article, as also in representing those concerned at the presentation, is in no way criticised by the Council.

Anything beyond this, however, is considered objectionable, as setting up between architect and client a wrong relationship of donor and recipient, and as unfair to many of the profession in encouraging rivalry as to the importance and value of the respective gifts.

Such, after due consideration, being the unanimous feeling of the Countil, it has been thought desirable to place these views before the members of the Institute generally, and to ask their co-operation in discouraging the practice referred to, the Council being assured that members will not only recognise the validity of its objections, but welcome its support in this matter.

In name and on behalf of the Glasgow Institute of Architects.

C. J. Maclean, *Secretary*.

MINUTES. V.

At the Fifth General Meeting (Business and Ordinary) of the Session 1904–05, held Monday, 9th January 1905, at 8 p.m.—Present: Mr. John Belcher, A.R.A., *President*, in the Chair, 26 Fellows (including 10 members of the Council), 30 Associates, and visitors—the Minutes of the Meeting held 19th December 1904 [*ante*, p. 144] were taken as read and signed as correct.

The following members, attending for the first time since their election, were formally admitted by the President, viz.:—Bernard John Dicksee, Percy Burnell Tubbs, and Llewellyn Kitchen (Hull), *Fellows*; William Edward Arthur Brown, Charles Michael Childs, Norman Culley (Huddersfield), William Thomas Curtis, John Malcolm Dossor (Hull), Percival William Hawkins, and Charles Ernest Monro (Glasgow), *Associates*.

The Hon. Secretary announced the decease of the following members:—Arthur Edward Perkins, *Fellow*, elected January 1904; John Thomas Wimperis, *Fellow*, elected 1877; Arthur Charles Wissenden, *Associate*, elected 1883.

The Hon. Secretary called attention to a number of works recently presented to the Library [see *Supplement*], and a cordial vote of thanks was passed to the donors.

The following candidates were elected to Fellowship by show of hands under By-law 9:—

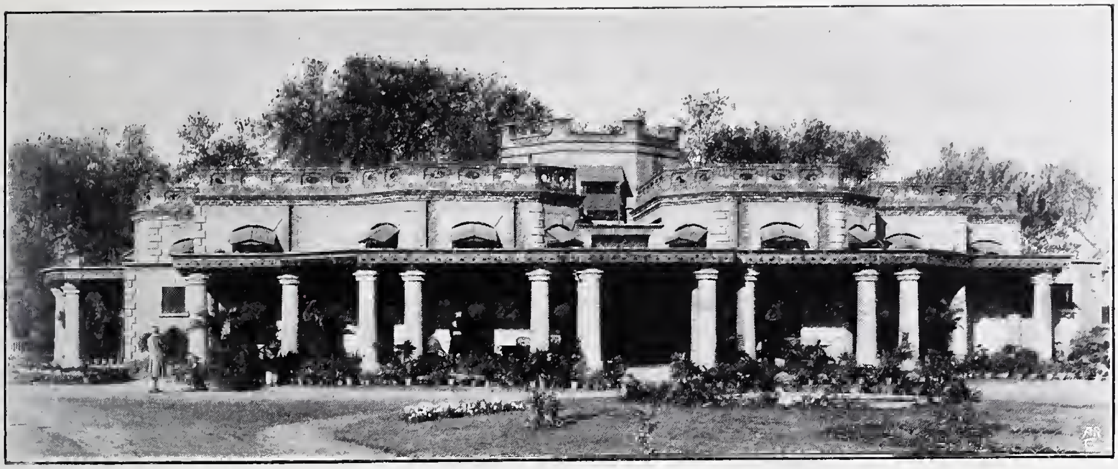
CHARLES HENRY BRODIE [*A.*].
GEORGE ALFRED HUMPHREYS, A.R.C.A., Llandudno, North Wales.
WILLIAM THOMAS LOCKWOOD, Chester.
ALFRED EVERY POWLES, Northwich.
ERNEST RICHARD ECKETT SUTTON, Nottingham.

Discussion of the Paper read at the last meeting by Mr. Lacy W. Ridge [*F.*] on Building By-laws, specially in Rural Districts was resumed, and on the motion of Mr. Lacy W. Ridge [*F.*], seconded by Mr. Edwin T. Hall [*F.*], it was unanimously

> Resolved, That in the opinion of this Meeting it is desirable that the Local Government Board should obtain Parliamentary powers to enable it to reform the By-laws now in force in rural districts and in the smaller towns, with a view to the enactment of such By-laws, and such By-laws only, as are really required in the public interest.

The Meeting then proceeded to the discussion of the Paper read at the last Meeting by Mr. James S. Gibson [*F.*] on Architectural Design and the London Building Act; and various proposals for the amendment of the present Act having been discussed, Mr. J. Douglass Mathews [*F.*] on behalf of the Practice Standing Committee undertook to bring them forward when the amended Bill came before the Committee for consideration.

The proceedings then closed, and the Meeting separated at 10 p.m.



Type of Bungalow in the Plains.

EUROPEAN ARCHITECTURE IN INDIA.

By James Ransome [*F.*],

CONSULTING ARCHITECT TO THE GOVERNMENT OF INDIA.

Read before the Royal Institute of British Architects, Monday, 23rd January 1905.

THERE has been in India of late years a tendency to erect buildings in the styles, and upon the lines, of those which are found to be suitable in England, and it is the object of this Paper to demonstrate the obstacles which oppose this practice, and to stimulate discussion upon the advisability of its continuance as a principle. For though the dearth of good European buildings in India is undoubtedly largely due to the lack of proper architectural training on the part of their designers, yet it is at least open to debate whether this deficiency may not be, in an even greater measure, the result of an insistence upon European traditions in the face of climatic opposition.

In order that those who have not visited the country may be able to form an opinion upon this subject, I will endeavour to describe briefly such of its main conditions as must necessarily influence its architecture.

Labour in India is cheap and abundant, and the native workman is capable of achieving the highest degree of excellence in any of the building trades and arts. It is therefore often within the limits of economy to introduce carving, inlaying, and general elaboration of detail into Indian work, to an extent which would be extravagant in other countries.

Left to himself, however, the native workman does not, as a rule, achieve success in the building line. He has an Oriental preference for show rather than merit, and is incapable of appreciating the virtue of reserve or the depravity of pretence. He is, moreover, slow to assimilate extraneous ideas; and, since proper supervision of architectural detail is often an impossibility, it is probable that he arrives at best results when working, under restraint, upon the lines to which he is accustomed.

In natural building materials India is rich, and yields freely many varieties of good building stones, marbles, slates, limes, clays, and timbers; but because many of its resources are undeveloped, and also on account of the cost of freight, restrictions in the matter of even natural building materials are not infrequent, and it is sometimes sound economy to import these from other countries. For most of its manufactured materials India has also to look elsewhere, for, apart from bricks and tiles, it may almost be said that no building materials are manufactured in the country.

As excellent lime is usually procurable, Portland cement is but little used in India on account of its expense; but its absence has materially limited the use of concrete for purposes which it may be made to serve. For it is generally understood that lime concrete cannot be successfully reinforced with iron; and though from experiments I have made I am inclined to think that this belief may be unfounded, its acceptance has had a marked effect upon the buildings of a country in which destructive insects preclude the use of structural timbers. It has resulted in the very general employment, in floors and roofs, of arched construction, which presents difficulties in regard to internal decoration, and has been permitted to dictate the lines of plans that might otherwise have assumed better shapes.

It is probably due to the presence of the white ant that lath-and-plaster work has never come into general use in India, where something of the kind is much needed to resist sound and heat.

I have been unable to ascertain that any serious attempts have been made to render woodwork immune from the ravages of the white ant, which menaces the life of every piece of timber (teak excepted) in the plains. Tar is of but little use in this respect, as it does not sufficiently impregnate the wood. It is, moreover, liable to set up dry-rot if applied to unseasoned timber, and properly seasoned timber is difficult to obtain in India. Treatment with creosote or Avenarius Carbolinium might be more successful; but in any case the use of metal lathing should now enable lath-and-plaster work to take the place of the sagging ceiling cloth and warped match-boarding which have hitherto usurped its duties.

Certain customs regarding sanitary matters have until recently rendered a separate bathroom, approached from outside, a necessary adjunct to almost all habitable rooms; and though latterly modern systems of drainage have been developing in the larger cities, the older methods have influenced, and will continue to influence for many years, the treatment of plans in this respect. Considerable ingenuity in planning is required for the successful disposition of these bathrooms, which, with their external staircases, form more often than not the most salient features in an Indian building.

Except in the comparatively few districts where earthquakes are of frequent occurrence, and in the case of buildings erected immediately after such disturbances, the possibility of their occurrence does not appear to have influenced the construction or designs of buildings; on the contrary there seems to be a feeling that even the smaller buildings are incomplete that do not boast some sort of tower, dome, minaret, or turret.

Cyclones affect construction rather than design, while dust storms render it advisable that all apertures ordinarily left open may be closed on occasions. In many districts the prevalence of flies necessitates the addition of gauze shutters to every opening, which requires special treatment if it is to escape disfigurement.

Although the rainfall over India generally is considerable, and its extent renders long gutters in a building unsatisfactory, it is not, as a rule, of so driving a nature as that to which England is subjected, and it is therefore less difficult to exclude from buildings. It is probably owing to this, and to the fact that practically the whole of the rain falls at one period of the year, when special steps are taken to deal with it, that many very inferior forms of roof-coverings are in vogue in India which would not be tolerated in this country. A really water-tight roof is an unusual luxury in India, and as failure in this respect is attributed to the severity of the rains rather than to the inefficiency of the roofs, but little effort has been made towards their improvement.

The roofs of most of the larger old European buildings were flat and covered with mud, which, if sufficiently thick, is an excellent non-conductor of heat, but has the disadvantage of requiring constant attention during the rains. With a view to overcoming this defect concrete is now more usually substituted, and as on account of expense it is not, as a rule, more than four or five inches in thickness, its resistance to the sun's heat is inconsiderable. Various devices, such as covering the roofs with large inverted jars or grass mats, are resorted to in order to remedy this; but most of these are open to objection, and it is probable that a better plan would be to build these roofs hollow. It has been objected that hollow roofs and walls would be no cooler than solid ones unless the intermediate spaces were ventilated, which is not practicable; but experiments do not appear to have been made in this direction, and I am inclined to think that a building constructed with hollow walls and roofs would be considerably cooler than one in which these were solid.

Latterly, pitched roofs have come increasingly into use in India; and though these are resented by some as being contrary to the traditions of the country, they are likely to survive the prejudices that exist against them.

Many of the old European bungalows had pitched roofs covered with thatch, which is undoubtedly the most successful roofing material for resisting heat. Unfortunately, however, the disadvantages which it possesses have even greater force in India than in this country, and it is undesirable that its adoption should become at all general.

It is something of a surprise to find that sheet iron, either corrugated or plain, is largely used for covering the roofs of Indian buildings, since it offers but little resistance to the outside temperature, is very noisy and rarely water-tight during the rains, requires constant attention, has no lasting properties, and is always unsightly; and that it can be quickly and economically laid seems inadequate compensation for its many disadvantages.

It is customary to paint these iron roofs a bright red, as it is held by some that this treatment gives to them the appearance of being tiled; but I have been unable to detect this similarity in any of the roofs I have seen thus treated.

Many varieties of patent interlocking tiles of single thickness are also much used for roofing, and are but slightly more successful than the iron sheeting in resisting temperature and rain.

Slated roofs are comparatively rare, even in slate districts; and as in most instances the slates are cleft thin and improperly laid, with insufficient pitch and lap, and secured by one iron nail which very soon rusts through, they have not achieved popularity.

In Rangoon, where the rains are very heavy and of a driving nature, it is customary to roof with wooden shingles, which are found to be satisfactory; yet plain flat tiles laid similarly are not used in India, though there appears to be no reason why they, or thick slates properly laid, should not give as good results in that country as elsewhere.

In most parts of India, owing to the dryness of the climate, buildings age but slowly, and one may look in vain to Nature to soften the hard lines and mellow the plain wall spaces. These are likely to retain all their pristine crudity for many years; and as the customary treatment of wall facings in India is inimical to picturesque effect, it has come to be an accepted axiom that plain wall spaces must be avoided. It is inevitable that this restriction should operate detrimentally upon the designs of buildings in which expense is to be considered, resulting as it does in the introduction of spurious construction and misplaced ornament.

In a country where buildings are rarely to be seen except beneath a brilliant and cloudless sky, the influence of cast shadows calls for greater consideration than in places blessed with less sunshine; hence much of the European work in India appears at its best only on the comparatively rare occasions when the sky is clouded. The native work is often richly inlaid with marbles, stones, and tiles, and when carving is employed externally it is usually in low relief. These forms of decoration are far more effective in the sunlight of the plains than are the bolder forms more characteristic of the English work.

It is the fate of most Indian buildings to be subjected to alterations and additions, in order to render them serviceable for purposes and conditions other than those for which they were originally intended; this is in no way encouraging to designers, but may be accepted as an apology for many of the inconvenient plans and much of the unsuccessful grouping so frequently exemplified in Indian buildings.

Pounded brick is much used in Indian mortar, and is found to give excellent results as regards the strength of masonry, but its effect upon the quality and appearance of brick facings has been disastrous; for as the mortar when wet is somewhat of the same colour as the bricks, no care is taken to keep the face of the work clean, and it is customary to flush up with mortar the whole of the facings, upon which are then ruled sham joints, the lines of which are dictated by the fancy of the workmen. This practice has led to the employment in facings of bricks of inferior quality, and but little attention is paid to thickness of joints or regularity of bond; indeed, it is usual to chip off the edges of the facing bricks in order that they may give a better key for the mortar. Thus the modern brick-faced buildings in India are of a pale crushed-strawberry colour, which bears but little resemblance to that of European brickwork; and as in many districts brick is the only available building material, and as it is now customary to leave facings unplastered, the general colouring of the modern portion of many of the cities leaves much to be desired.

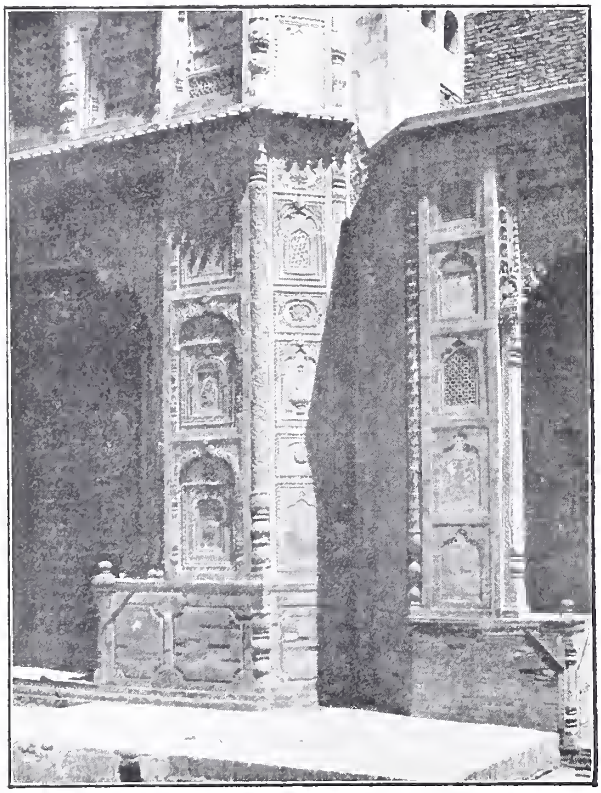


FIG. 1.—SPECIMEN OF NATIVE BRICK CARVING, LUDHIANA.

Yet for the most part Indian bricks are of excellent colour and quality, and, as will be seen from the example of carved brickwork shown in the photograph [fig. 1], susceptible of sufficiently fine treatment. This photograph is of a native dwelling in Ludhiana, and gives a fair idea of the class of brickwork which the natives used to execute for themselves. The bricks are rubbed so that their joints are hardly perceptible, and the whole of the face is finely carved. Such work is abundant in many of the native cities, and is still being executed, but, unless encouraged by Europeans, will shortly cease to be practised.

So far I have attempted to describe some of the minor differences between building conditions in India and those of this country, and it now remains for me to deal with the temperature of India in so far as it affects building designs. For this purpose the climate of India may be classified under three headings—viz. that of the hills, that of the plains, and that of the coast—and though it will be understood that these must necessarily merge one

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into the other, it is probable that by describing typical cases of each, some idea of the general conditions will be conveyed.

Simla will serve as an example of the hills, with its average day and night temperatures of 74 degrees and 61 degrees in the hottest month, and of 44 degrees and 34 degrees in the coldest month. These temperatures tally so nearly with those to which we are accustomed in this country, that, so far as heat and cold are concerned, there is no reason why buildings suited to an English climate should not serve their purpose equally well if transplanted to the hills of India.

Unfortunately, most of the buildings in the hills have been designed by those accustomed to dealing with the buildings in the plains, and the influence of the latter has been allowed a larger share in the arrangement of their plans than has been accorded to the climate. Hence the type of building we find ordinarily in the hills has rooms opening into verandahs, which contain the staircases, and offer the only means of access from one room to another. The Simla United Service Club is a good instance of this type of building in timber construction, and the old Imperial Secretariat (erected under the influence of a fire scare) is of similar arrangement but of iron construction [fig. 2]. The new Civil Secretariat has no verandahs, the rooms being served by a central passage—an arrangement which, if properly carried out, is more suited to the climate.

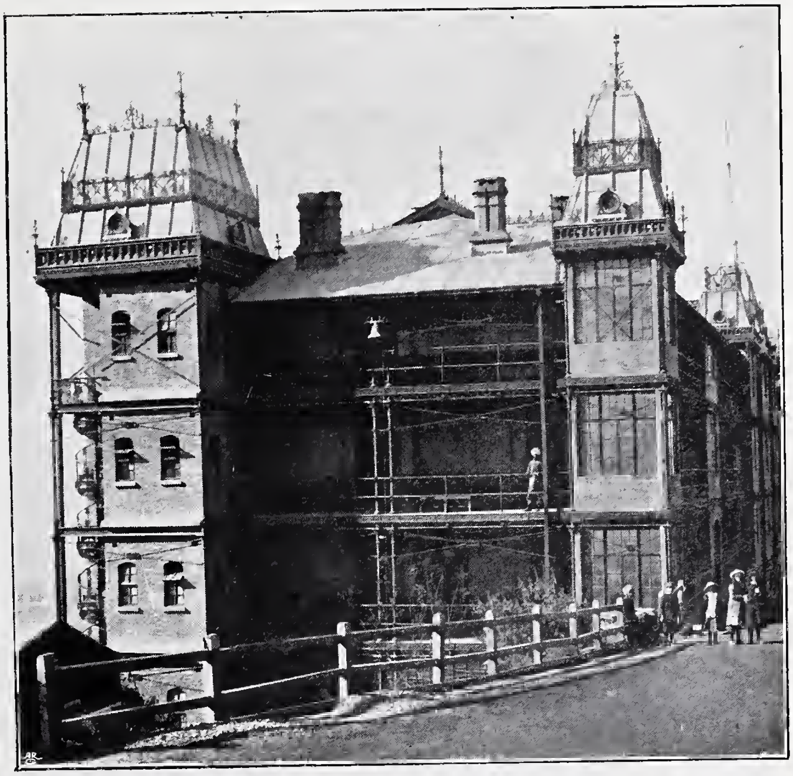

FIG. 2.—CIVIL SECRETARIAT, SIMLA.

In private dwellings it is customary to glaze these verandahs on account of the cold, and this treatment has the effect of restricting the light and air admitted into the living-rooms. These in consequence fall into disuse during the day, and are deserted in favour of the glazed verandahs, which have ordinarily the temperature of a hot-house during the day and are often bitterly cold at night. This unhealthy arrangement, which is probably responsible for much of the illness to which residents in the hills are subject, has been adopted at the Simla Hospital.

As an example of the temperature of the coast we may take Bombay, which has average day and night temperatures of 90 and 80 degrees during the hottest month, and of 82 and 68 degrees during the coolest month; while at Allahabad, which will serve as an instance of the plains, the average day and night temperatures are 107 and 79 degrees during the hottest month, and 74 and 48 degrees during the coolest month.

NORTHERN ARCHITECTURAL ION

It will be seen from these figures, that while the temperature of the coast may be considered as uniformly hot, that of the plains, though rising many degrees higher during the hottest days, falls considerably at night, and is some 30 degrees cooler in winter than in summer. Hence it is customary in the plains to close all apertures and exclude the outside air during the hot days, while around the coast, which has usually the advantage of sea breezes, windows and doors are thrown open all the year round, and the windows are frequently left unglazed.

In the older buildings these opposite conditions produced a marked difference between the plans of buildings for the plains, and those for the coast; for whereas the former were, as a rule, compact, with lofty rooms grouped around a large central apartment usually unlit by windows, the plans of buildings for the coast were extended and arranged so that the rooms had as many outside walls as possible.

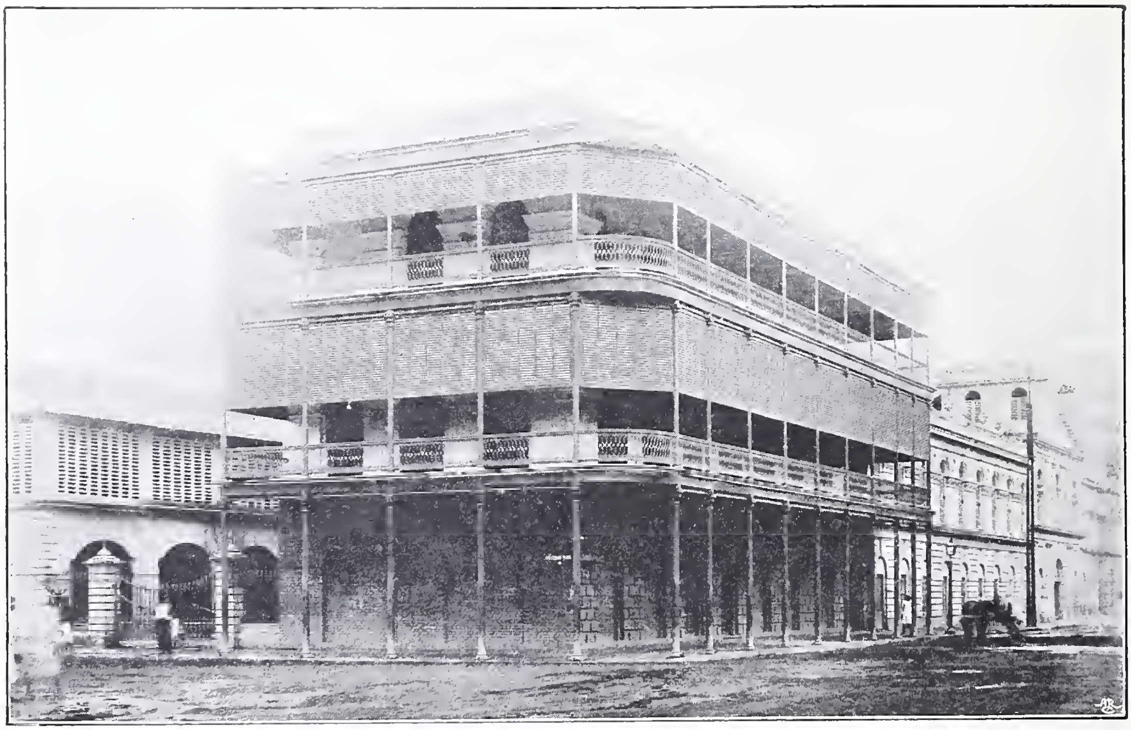

FIG. 3.—PRIVATE SECRETARY'S HOUSE, CALCUTTA.

In the more modern buildings this difference is less marked, for on the one hand the introduction of cooling by evaporation has opened out the plans of buildings for the plains, while increased cost of building has curtailed the area of those for the coast. As a rule, however, the older arrangements were more satisfactory, and it is not desirable that the conditions which gave rise to them should be overlooked; it would be less detrimental to the comfort of buildings on the coast if economy were effected by curtailing the height of rooms rather than their area.

But whether on the coast or inland, the comfort of buildings in the plains of India is chiefly dependent upon the extent to which their walls are protected from the rays of the sun. Many of the European buildings are now built without verandahs; but as their omission entails great discomfort, and ultimately results in the disfigurement of the building by various devices

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for protecting it from the sun, there can be no question as to the necessity for verandahs around the external walls of every habitable room except those facing north.

The Private Secretary's House at Calcutta is a good instance of a building originally without verandahs, which have been subsequently added to it on practical lines, and without regard to architectural effect [fig. 3]. It will be seen that the verandah openings are about 7 feet high, and that the space between them and the floor above is filled in with louvred screens. In spite of the unsightly appearance of this arrangement, it must, I think, be taken as a basis upon which the lines of masonry verandahs should be constructed, for it admits the maximum of light and air at a low level and affords shade and ventilation above. But it is perhaps fortunate, as far as the appearance of buildings is concerned, that these louvred screens are not entirely satisfactory, as, during the time that they are exposed to the sun, the heat radiated from them is considerable, and the substitution of masonry walls with apertures at ceiling level gives better results, since, provided that these apertures be of sufficient length and of less depth than the thickness of the wall in which they occur, they afford better ventilation and more light, without admitting the sun's rays.

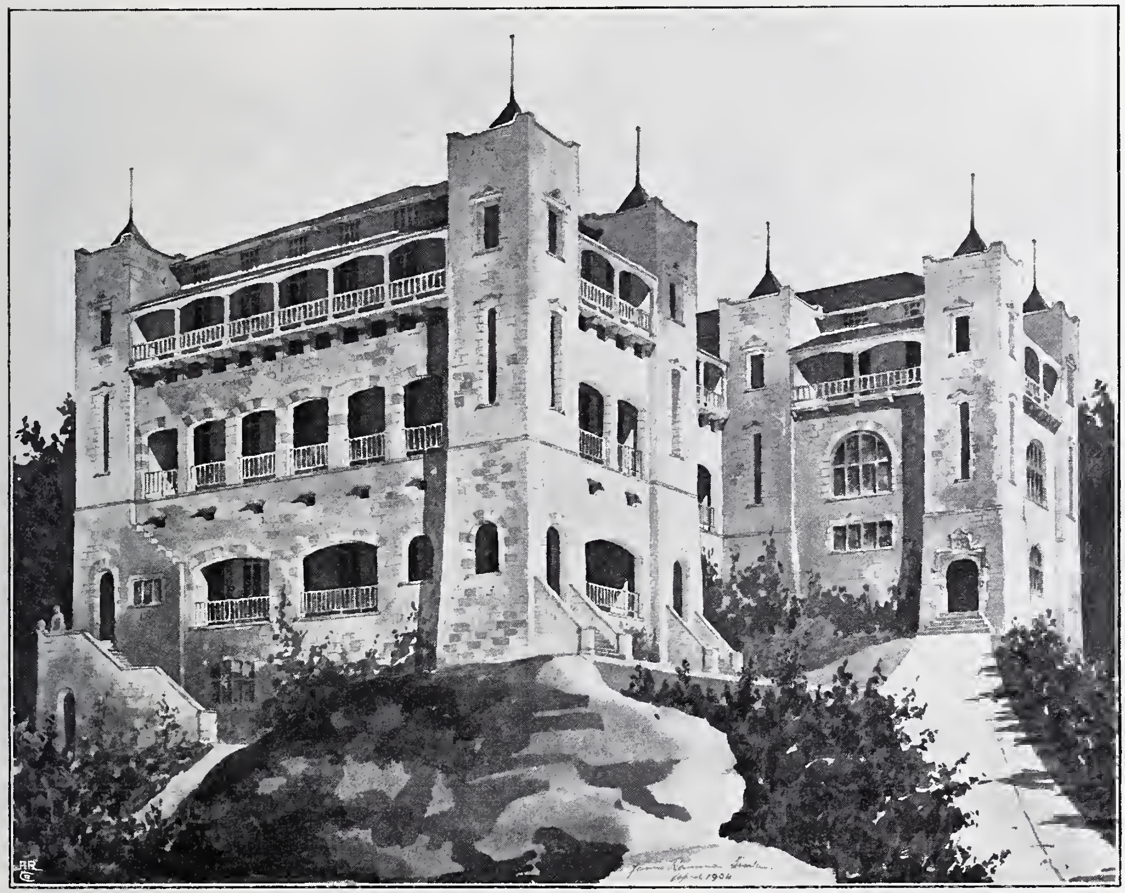

FIG. 4.—THE AGENCY, MOUNT ABU (James Ransome, Architect).

It follows, therefore, that the appearance of an Indian building must necessarily be largely dependent upon the treatment given to its verandahs, and one of the chief difficulties

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in this connection is that of expressing a sufficient feeling of solidity in a building of which so large a proportion of its main walls must be concealed.

The usual method of meeting this difficulty can be seen in the Agency Building, Mount Abu, in which projections, treated as towers, are introduced at the angles, where the necessity for light being less the extent of the openings can be reduced [fig. 4].

It will probably occur to most architects that these conditions should be favourable to the employment of classic colonnades, and that this was the opinion of the designers of the early European buildings is demonstrated by the fact that nearly all of them were thus treated. But if a verandah is to shade the walls of a building during the greater part of the day, it must not have openings of any great height above a distance from the floor equal to about two-thirds of its distance from the wall it is intended to shelter; and as on account of economy the width of verandahs does not, as a rule, exceed about 12 feet, it follows that the architrave of a colonnaded verandah should not be higher than about 8 feet from the floor.

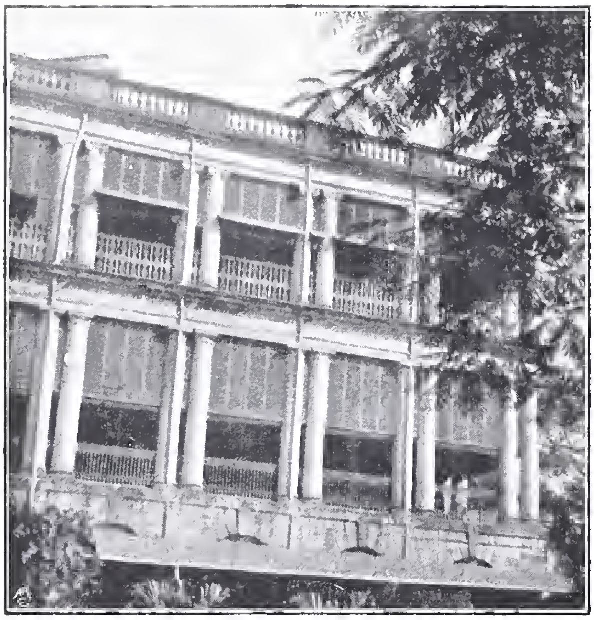
FIG. 5.—PRIVATE RESIDENCE, CALCUTTA.

Classic columns of such proportions applied to a building in which the rooms are 20 feet high would be difficult to treat successfully; but the alternative of making the colonnade the full height of the rooms, and blocking up the spaces between the columns with louvred screens, cannot be considered a satisfactory solution of the difficulty. Instances of this treatment are, however, to be found all over India, and the effect produced may be judged from photographs of the Bishop's Palace at Calcutta and many of the private residences in that city [fig. 5].

Some idea of the proportion that a verandah bears to the main walls of a one-storied building may be gathered from the photograph of a typical bungalow in the plains [*see headpiece*], and from that of the Banqueting Hall at Madras, to which a classic treatment, on rather different lines from those which I have described above, has been applied with no very great success.

These illustrations show that the application of classic architecture to Indian buildings is attended with difficulties; but the achievement of a successful Gothic building, under conditions which entail the concealment of its windows, is an even greater problem.

The High Court at Calcutta has suffered much from the various contrivances with which it has been disfigured with the object of rendering it more suited to the climate. It is a building of some pretensions, occupying one of the best sites in the city, and appears to greater advantage in a photograph than in reality, as its tracery and enrichments, which purport to be of stone construction, are very palpably of wood and plaster [fig. 7].

The Hong Kong Bank at Rangoon is another instance of a Gothic building similarly disfigured.

But it is in Bombay that the best examples of secular Gothic buildings are to be found, and though some of these have escaped the disfigurements to which I have drawn attention,

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their immunity in this respect is evidence of a regard for their appearance rather than testimony to their convenience.

The Victoria railway station is a good instance of these, and though the quality and extent of its decoration are open to criticism, it is undoubtedly one of the finest European buildings in India.

The Municipal Buildings can hardly be said to be of Gothic design, but have sufficient of the characteristics of the style to justify their illustration in this connection.

The design of the Railway Offices shows a somewhat similar treatment, but its admirable grouping and excellent proportions more than compensate for the crudity of its detail.

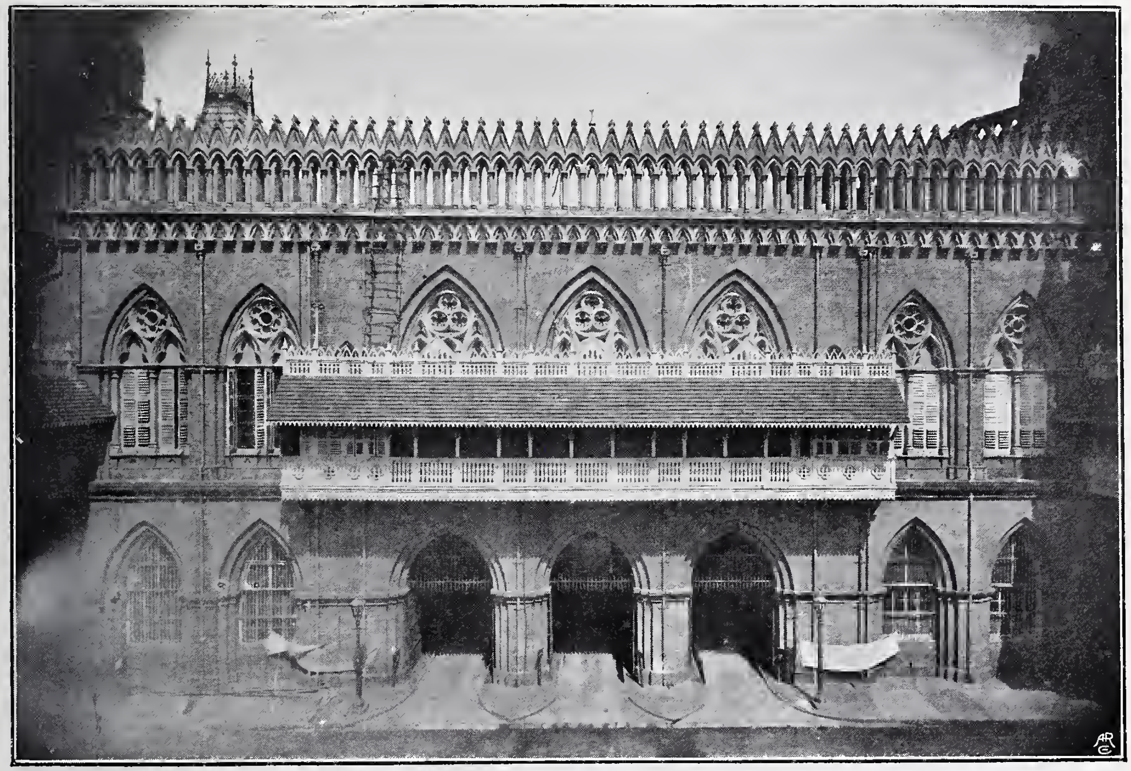

FIG. 7.—HIGH COURT, CALCUTTA.

In the European Hospital at Bombay, the introduction of screens and sunshades was probably anticipated in the original design, but they can hardly be considered æsthetically successful.

The treatment of the verandahs of the Cama Hospital, in the same city, is upon more conventionally Gothic lines, but it affords less protection from the sun.

The Gothic style is also much in evidence in the Indian clock towers, which are numerous, and for the most part over-ornamented. Probably the plainest of these is that which is being erected at Ludhiana, the design of which is based upon the well-known Campanile at Verona.

In ecclesiastical buildings it has been the custom to indulge Gothic traditions at the expense of any considerations of climate. No advantage appears to have been taken of the natural adaptability of cloisters to serve the purpose of verandahs, which are usually omitted from designs for churches ; and large unprotected east and west windows are frequently introduced. A natural disinclination to disfigure their appearance tends to discourage any

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alterations which might mitigate their defects; and hence Indian churches are, for the most part, unbearably hot, and frequently useless for purposes of worship, during the hot weather.

In the Cathedral at Allahabad [fig. 8] the windows are in deep recesses and flanked by buttresses of considerable projection. This is an effective arrangement, and has the advantage of throwing the windows in shade during the greater part of the day.

In the design for the new military church at Lucknow [fig. 9], an attempt has been made to exclude the sun's rays entirely from the interior of the building, and also from its external walls, all of which, except those facing north, are protected by verandahs. Light and ventilation are admitted to the nave by means of a continuous band of low clerestory windows, which on the east, south, and west sides are provided with double frames, of which those on the inside face of the wall are fixed at a higher level than those on the outer face—an arrangement which, it is hoped, will give satisfactory results.

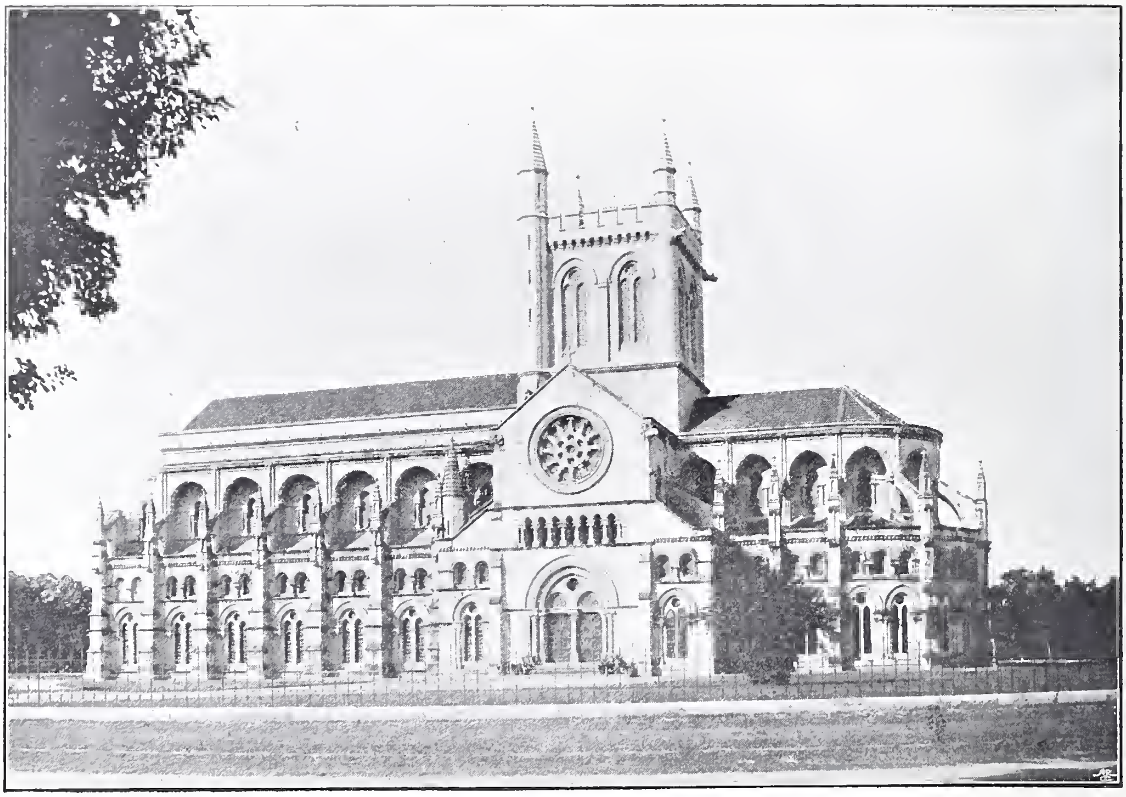

FIG. 8.—ALLAHABAD CATHEDRAL (Sir William Emerson, Architect).

The Imperial Secretariat at Calcutta may be taken as an example of Renaissance architecture as applied to Indian buildings. The effect which its arcaded verandahs would otherwise produce is marred by the sunshades with which its arches are blocked.

The Rangoon Secretariat is a building on somewhat similar lines, and has been disfigured by sunshades of a different type.

Another example of Renaissance work is in the Elphinstone Circle at Bombay, where the monotony produced by the repetition of arcading, unrelieved by any wall spaces or windows, is very striking.

The Army and Navy Stores at Calcutta is an instance of a building in this style, but without verandahs. It is considered by many to be the finest building in Calcutta; it is certainly one of the hottest, and is not likely to escape the ultimate fate of others built on similar lines.

The design for the Secretariat at Nagpur [fig. 10] exemplifies an effect which verandahs treated with low-arched openings and top ventilation may produce upon a Renaissance building; and a similar arrangement, influenced by François Premier traditions, is demonstrated in one of the many designs which have been made for the Chief Court at Rangoon.

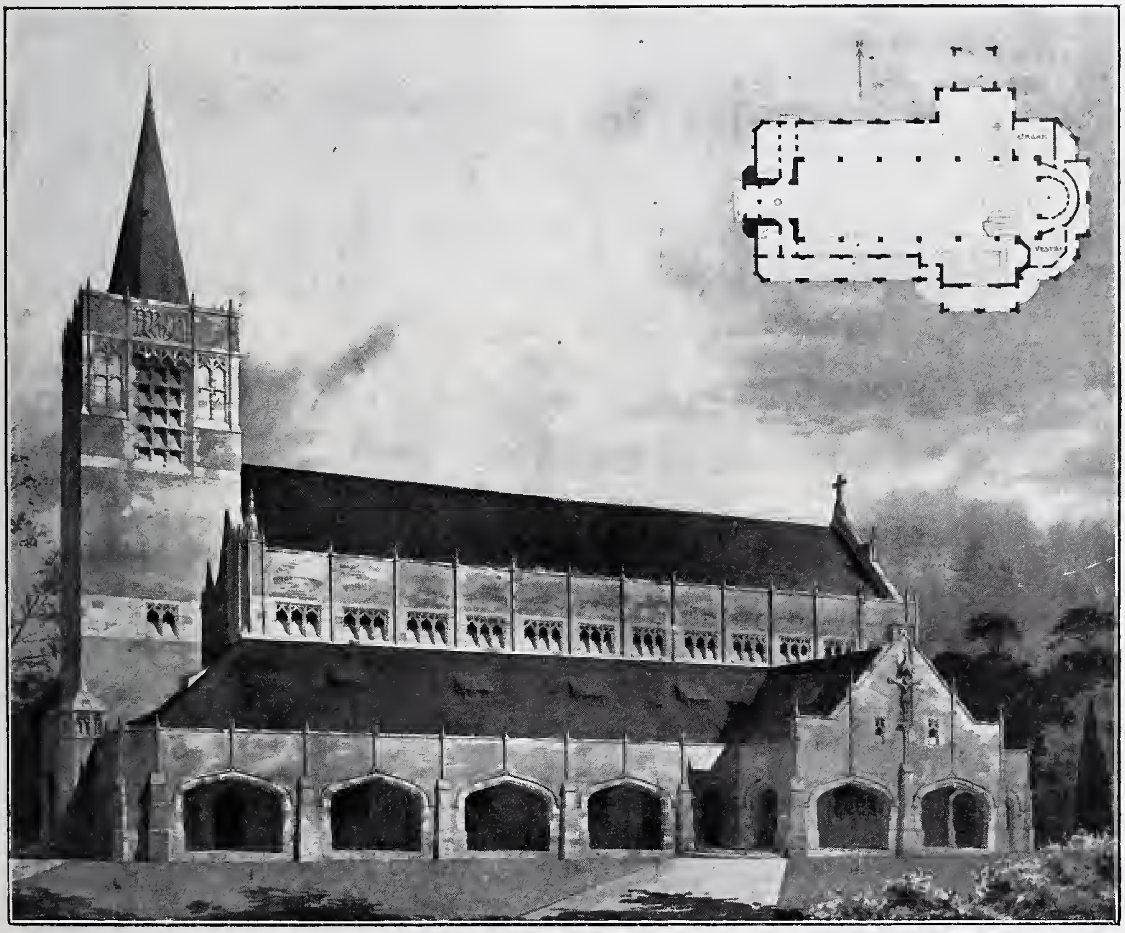

FIG. 9.—MILITARY CHURCH, LUCKNOW (James Ransome, Architect).

So far as protection from the sun is concerned, verandahs on the north side of a building are unnecessary; but where these are omitted, those on the east and west may still be important factors in the composition of a north elevation, as is demonstrated in the design for the Agricultural College at Pusa [fig. 11].

In many of the modern designs for buildings, attempts are made to follow the lines of native Indian architecture; but as such designs are, as a rule, based upon a very perfunctory study of the native work, which presents exceptional difficulties in the way of its successful adaptation to European requirements, the practice is not attended by very satisfactory results.

But as it is inevitable, and probably desirable, that European architecture in India should be influenced by the native styles of the country, I will endeavour to give a rough outline of their chief characteristics and some illustration of the designs they have inspired.

For this purpose Indian architecture may be broadly classified under two heads—viz. Hindu and Saracenic. Instances of satisfactory structural forms are rarely to be met with in Hindu work, which seems never to have shaken itself free of the timber and rock-cut traditions upon which it was based. Its outlines overwhelm rather than satisfy, and the majority of its buildings suggest more the restless piling of masses upon inadequate supports than any definite aspiration towards successful composition. Yet much of the Hindu work is covered with beautiful detail, and enriched with refined and graceful ornament.

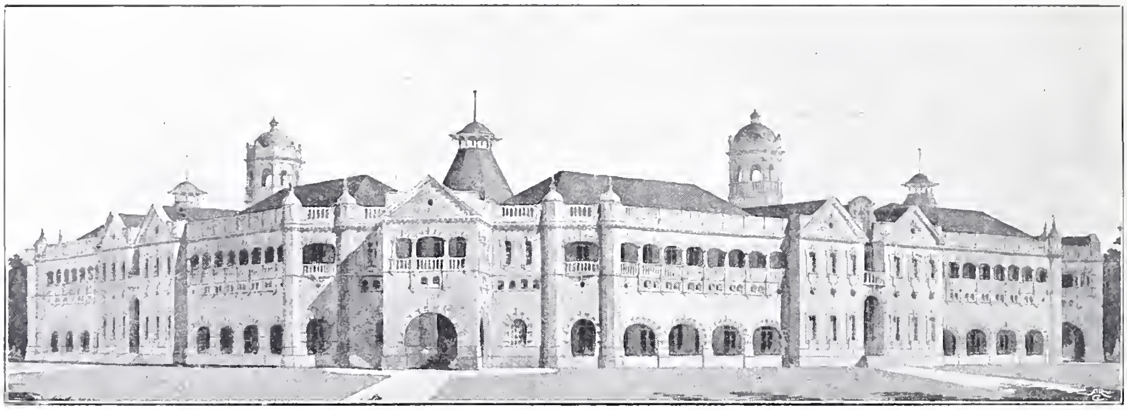

FIG. 10.—SECRETARIAT, NAGPUR (James Ransome, Architect).

One can hardly touch upon Saracenic architecture without some mention of the Taj Mahal; yet its conception is so immeasurably above that of any of the buildings which come under this heading, and its treatment in many respects so different, that it can hardly be regarded as a typical example of the style. No photographs or pictures that I have seen of this masterpiece convey an adequate idea of its wonderful beauty, which seems to defy imitation and elude analysis. It is strange that such a monument to the power of simplicity should stand in a country so much in need of the lesson it should teach, and the fact that its influence upon the architecture of the country is imperceptible is perhaps even more surprising. Much of its effect is undoubtedly due to the increased play of light and shade, induced by its walls meeting at obtuse angles—a form of treatment which might be applied more generally to the walls of

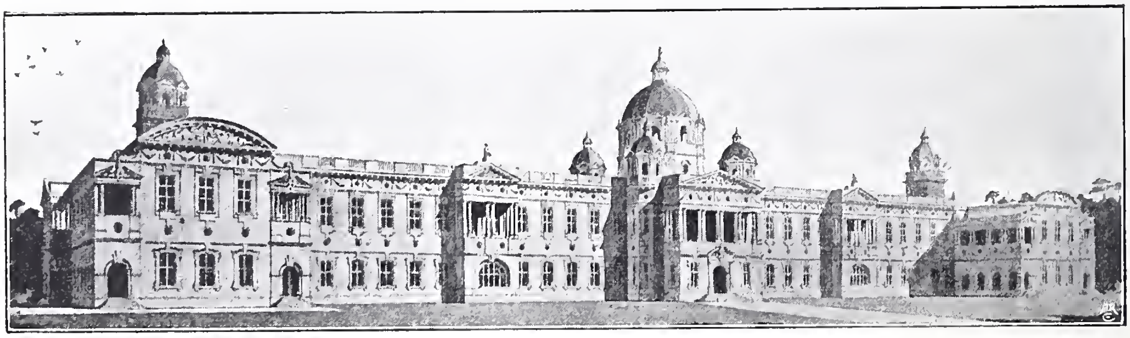

FIG. 11.—AGRICULTURAL COLLEGE, PUSA (James Ransome, Architect)

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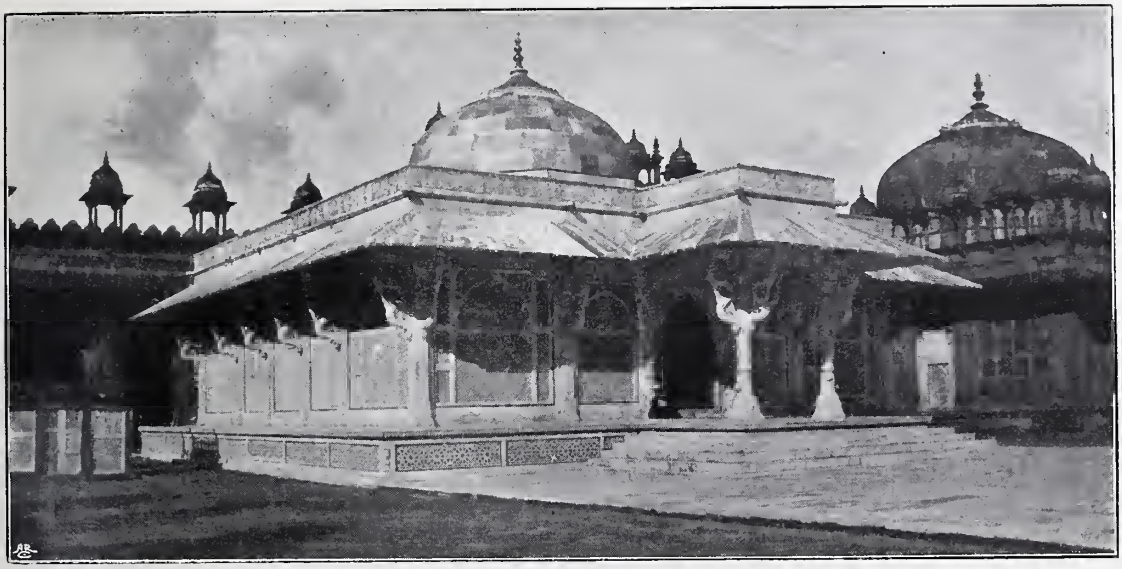

FIG. 12.—SALIM CHHISTI'S TOMB, FATHPUR, SIKRI.

verandahs without detriment to their utility, and with some advantage to their appearance; for the excessive accentuation of right angles, produced by the brilliant sunlight of the plains, is not always beneficial to the appearance of a building.

The tomb of Salim Chhisti at Fathpur Sikri presents more of the characteristic features of Saracenic work, which, while it furnishes many useful suggestions, is, as a rule, too dependent for its effect upon expensive and unnecessary features to justify its faithful reproduction in modern utilitarian buildings [fig. 12].

A dome is not ordinarily an economic form of roof, and it is not easy to find any useful employment for minarets and the little domed structures with which the roofs of Saracenic buildings are usually decorated, and which play so large a part in their composition. Nor is

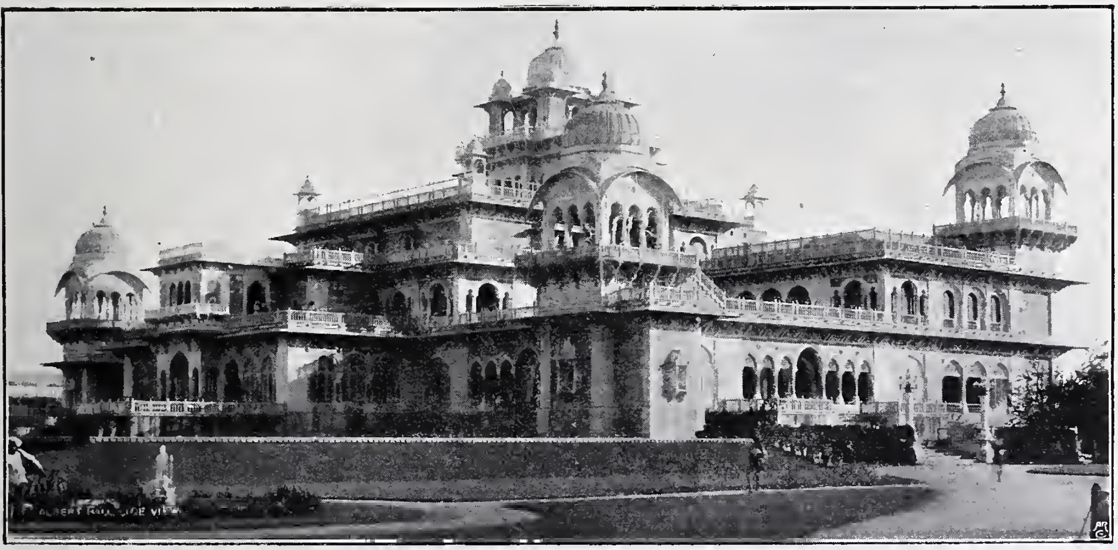

FIG. 13.—ALBERT MUSEUM, JAIPUR (Col. Sir Swinton Jacob, Architect).

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there much need in European buildings for the finely pierced stone tracery which was extensively used in the windows and balconies of this style; or for those curious and typical features known as Jhomkes, examples of which are to be found on the gateway of the Taj.

On the other hand, the Chujja, or wide projecting slab cornice, which is one of the most characteristic features of Saracenic work, is exactly what is required to shelter clerestory windows and exposed walls.

The Kingras, or ornamented battlements, many of which are of very beautiful design, can be introduced effectively in place of the European parapet, while the great variety of form in the Saracenic arches affords sufficient scope for judicious selection.

The style is also rich in oriels and balconies, designed in admirable taste and executed with considerable skill.

The museum at Jaipur is probably the most successful modern building in this style, and is a good example of the work of one who has devoted many years to the study of native architecture [fig. 13].

Other instances of modern Saracenic work may be found in:—

The Hospital at Bhavnagar.
The Police Station, Benares.
The Memorial Hall, Quetta.
The University at Allahabad.
The Zenana Hospital, Delhi.

The new General Post Office [fig. 14] which is being built at Bombay is a free adaptation of the style of architecture to be found in the ruined city of Bijapur. The treatment of the verandah openings is ingenious and effective, and the design furnishes many original and useful suggestions.

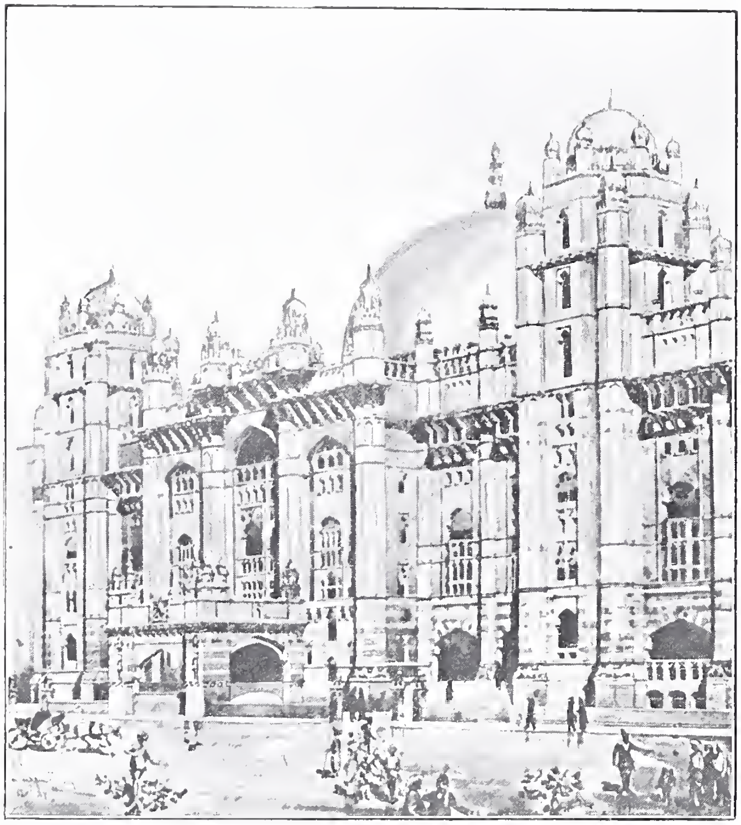

FIG. 14.—THE NEW GENERAL POST OFFICE, BOMBAY (Mr. John Begg, Architect).

But it is in Madras that the influence of native architecture upon European buildings is most apparent, and some of the results which a predilection for this style may engender may be seen in—

The Bank, Madras [fig. 15].
The Post Office, Madras.
The Y.M.C.A., Madras.
The Law Courts, Madras.

In a design which was prepared for the North-Western Railway Offices at Lahore [fig. 16], an attempt has been made to employ such of the Saracenic features as could be considered serviceable upon a building whose main lines should be dictated by a strict regard to the

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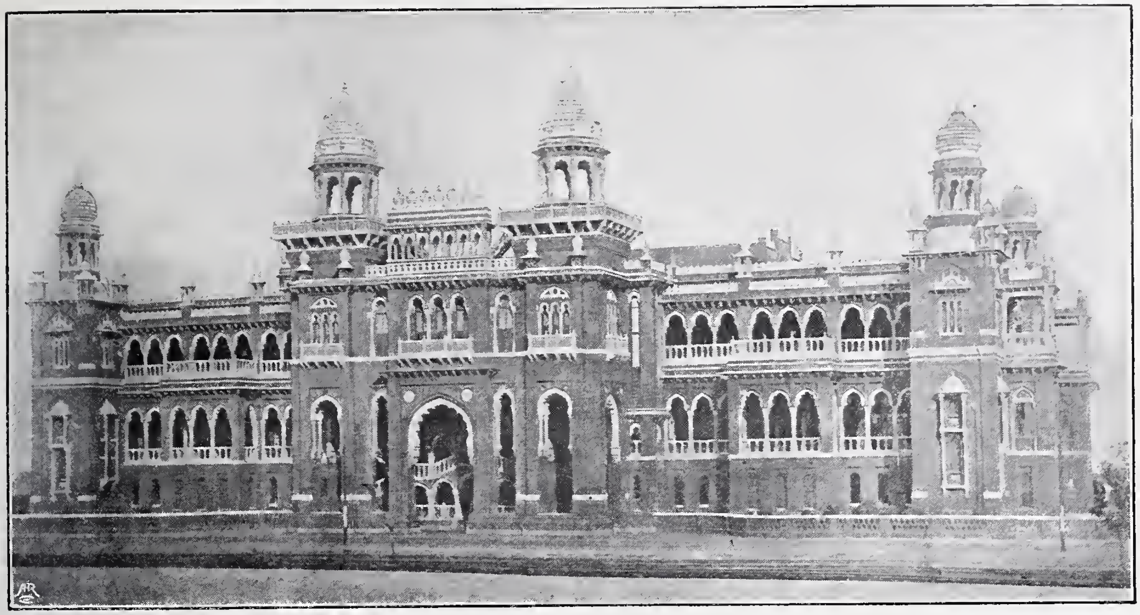

FIG. 15.—THE BANK, MADRAS.

exigencies of economy and utility. It is inevitable that the result of so deliberate a disregard of traditions should be open to the censure of those who hold that purity of style is essential to the success of a design; but in my opinion conditions in India are such as justify any departure from precedent which may tend towards the increased comfort of its buildings.

A competition was recently instituted in which architects practising in England were invited to submit drawings illustrating their suggestions for the external treatment of a block of offices of which a plan was supplied. Certain stipulations were made with a view to ensuring that the designs should be suited to the climatic conditions of the plains of India.

It may be inferred that the conditions imposed were not easy of fulfilment, since, out of over fifty applications, only twenty-eight designs were submitted. Many of these contain useful suggestions, and some few of the designs will be illustrated upon the screen. It is worthy of note that, although no stipulations were made as to the style of architecture which should be followed, in no instance has any attempt been made to adhere to European traditions.

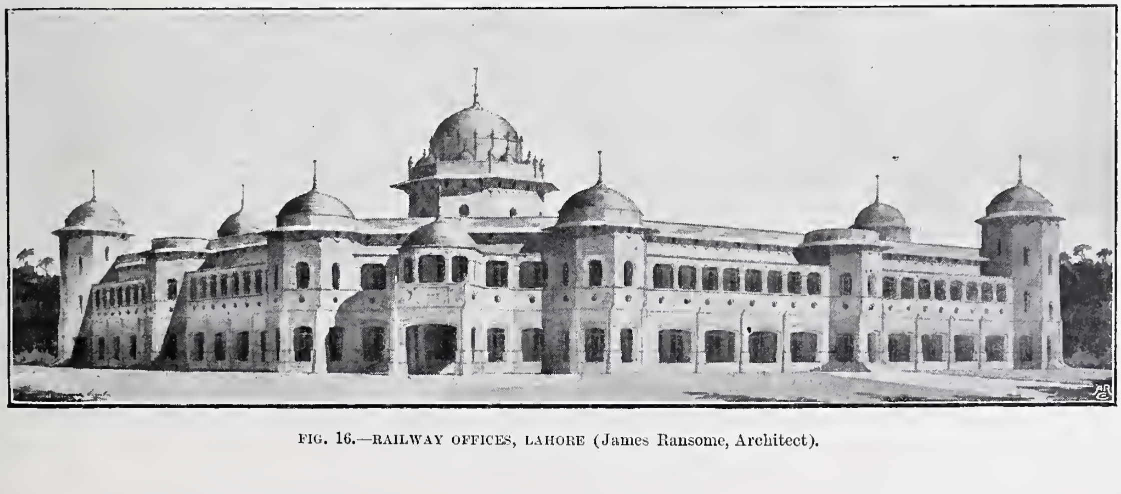

FIG. 16.—RAILWAY OFFICES, LAHORE (James Ransome, Architect).

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DISCUSSION.

Mr. Thos. E. Collcutt, *Vice-President*, in the Chair.

Mr. R. F. CHISHOLM, F.S.A. [*F.*], who rose at the instance of the Chairman, said it had fallen to his lot, as perhaps the oldest living architect practising in India, to propose a vote of thanks to Mr. Ransome for his very able and interesting Paper. It was able and interesting for the reason that it covered a very large surface in as few words as possible, and it demonstrated, with great fairness and impartiality, an exceedingly difficult subject—the treatment of modern architecture in India from an Anglo-Indian point of view. As he (the speaker) had practised in India for upwards of thirty-five years, he could state that he had never heard anybody attack so difficult a subject in such an able way, because the author of the Paper had avoided "treading on anybody's toes." Mr. Ransome had grasped, and very ably placed before them, the one great difficulty in all Anglo-Indian architecture, viz. the treatment of the external wall; to avoid, on the one hand, leaving the external walls so open that the building appeared to be a mere cage of architecture, frequently only half concealing a more solid building behind with no architectural pretensions at all; and, on the other hand, to gain dignity and solidity by exposing a large surface of wall, to the detriment and inconvenience of the people who lived in the building. His own private opinion was that this great problem in Indian architecture had never yet been fairly met. The division of the whole of India into two great classes—Hindoo and Saracenic—was undoubtedly happy and true. But it must be remembered that India had imbibed its arts, including architecture, from five different sources: first, from China, on the north-east, came a wave of art through Thibet and Nepaul; secondly, from the same source came a wave of architecture into the south-east of India, greatly modified in its travels through Burmah and the Straits; thirdly came a wave of architecture from Egypt and from Arabia through Kattiawar and Cutch; fourthly came a wave of architecture on the north-west frontier from Europe and from Persia; and lastly came that very curious Byzantine wave which greatly modified all the native architecture of India, and culminated in that building of wondrous beauty, the Taj Mahal at Agra. He could thoroughly endorse Mr. Ransome's statement that no photograph conveyed the slightest idea of what that building looked like. It was really spiritual. One might as well take a beautiful child with rosy cheeks, blue eyes, and golden hair, and attempt to show what she was like by photographing her. All the styles he had noted spread out like fans, and overlapped and modified each other, so it would be seen that, although Hindoo and Saracenic divided the architecture of India into two convenient classes, this division did not go further than the division of all European architecture into Gothic and Classic. With regard to the modern treatment of buildings, as to how far they should be native and how far they should be European, this was a very difficult question to attack. At the expense of his reputation he had discarded "style" in all his buildings beyond what he could get out of the natives on the spot; he thought it would be a very good rule to anyone practising in India to accept the local materials, to do the best he could with the local labour, to work on the traditions of native art, and to observe also the golden rule that the amount of ornamentation put on a building should not exceed a certain ratio to the value of the materials which exhibited that ornament. With regard to the dome he understood Mr. Ransome to say that it was not an economical form of construction. He must, however, disagree with him on that point. The cost of the dome lay chiefly in the cost of the centering; but if the dome was turned on true Hindoo principles without a centre the cost of doming was very little more than the cost of walling. He himself had carried out these principles in domes varying from 16 up to 72 feet in diameter, and he had never had an accident of any kind. On one occasion, turning a very flat dome, there were horizontal rings and openings at the back which he had grouted up, and the moment the centre was closed the dome was perfectly stable. The domical form of construction, he thought, was worthy of more consideration than architects had given to it. The practical and constructive points Mr. Ransome had touched upon were so exhaustive, carried one into so many ramifications, and covered so much ground, that it was almost impossible to take them up. The Paper was rather one for careful consideration and digestion. They could not in one evening—or even in a week of evenings—decide any one of the questions he had brought before them; so in proposing the vote of thanks, which he had the greatest pleasure in doing, he would not attempt to do the impossible.

Mr. JOHN SLATER, B.A. [*F.*], said he was afraid very few present had sufficient acquaintance with work in India to enable them to discuss from any practical point of view the Paper to which they had listened with so much pleasure. It was a source of great regret to them that Sir William Emerson, who had done so much work in India, had been unable to come that evening. He himself could lay no claim whatever to practical experience of work in India; but he remembered very nearly forty years ago, when he was a pupil of the late lamented Professor Roger Smith, that the Professor had just carried out some works in India, and he had the advantage of seeing the drawings made for them. With regard to Mr. Ransome's remarks about the natural building materials in India, it could not fail to have struck anyone who had seen Sir William Emerson's design for the Victoria Memorial in Calcutta that he had had to go to the expense of getting marble from Greece for that building, which he ventured to think—and he believed every one who had seen the drawings would agree with him—would be a very magnificent addition to the buildings in Calcutta. It might interest members of the Institute to know that that great Gothic genius William Burges in 1866 or 1867 designed a building for Bombay which was to be the School of Art there. The building was described in a Paper read before the Institute by Burges in 1867,* and it was interesting to notice how the genius of Burges showed itself in the new conditions under which he had to work in designing a building for a very hot climate. This building was never carried out—at any rate he assumed so from the concluding paragraph of Burges' Paper, which ran as follows:—"Such is, or rather was, my scheme for a School of Art in Bombay. I say 'was' because the last advices (not official) from India tell me that there is a report abroad that my scheme is to follow the fate of so many other schemes, viz. that it is to be put in the hands of the military engineers, who are to perpetrate a copy of the building we all so much admire at South Kensington." He happened to look up that Paper, and he thought it would be interesting to the Meeting to notice this fact that had occurred in Burges' history, and that that design of his had been commented upon in that room so long as forty years ago. Perhaps Mr. Chisholm would know whether Burges' design was ever carried out.

Mr. CHISHOLM: No, it was not.

Mr. SLATER.—With regard to some of the practical points touched upon in the Paper, he did not know whether any one had tried in India the use of slag wool for keeping out the heat. He could not help thinking that in a hot climate this stuff—which was absolutely proof against the attacks of insects of all kinds—might be used with very great advantage. With regard to ventilating the roofs, surely there would be no difficulty in having a space between the ceiling of the top room and the roof proper through which the air could circulate. That would have some effect in mitigating the heat which would beat upon the building. It was curious to note from Mr. Ransome's Paper that the same tricks were practised in India with regard to pointing as were practised here. The mortar when wet was so much the colour of the brick that the joints were invisible, and the workman ruled the joints according to his own fancy. Much the same kind of thing was done in London, where the abominable practice of tuck pointing existed. The bricks were smeared over with colours, and the lines, as a rule, were quite independent of the joints themselves. He was interested to hear what Mr. Ransome said with regard to the height to which verandahs in front of Indian buildings should be raised. When Professor Roger Smith read a Paper at the Institute in 1868 on Architecture in India,* he said that the verandahs outside the building ought to be the full height of the building itself. Practical experience, however, had shown that that was not altogether desirable, and Mr. Ransome's idea of keeping the verandah low was the plan that ought to be adopted. He seconded very heartily the vote of thanks, because the subject Mr. Ransome had brought before them was a very interesting one: and whatever they might think of the artistic character of some of the buildings illustrated, at any rate they had been exceedingly interesting.

Mr. W. H. ATKIN BERRY [*F.*] said he had listened with the greatest pleasure to the Paper, and had looked with interest upon the slides Mr. Ransome had been good enough to show, so bringing before them some little bits of India; but he could not help feeling that it was impossible fully to appreciate the points of this subject without some personal knowledge of that country. It had been his good fortune, some years ago, to visit India, and to travel a little about the country; and although he had not had full opportunity for seriously studying its architecture, he of course received some impressions, although they might have been but passing impressions. One that he received very strongly was that all attempts at European architecture there were too dreadfully European. He did not say that in any sense of disparagement of the works of those who had attempted European architecture there, but as showing, to his mind, the fact that it was a fatal thing to attempt to transplant the traditional characteristics of other countries into one so entirely different as India. Apart from that consideration, there were many buildings in India, the work of Europeans, which in no sense deserved to be termed "architecture"; they were buildings, but of the most unsatisfactory kind architecturally. In many cases that was the consequence of those works having been carried out by men who had no pretension whatever to training as architects. It was well known that engineers had done there an enormous amount of building which passed as architecture. They knew what engineers' architecture was—he was not saying that unkindly—they had examples of it in England. It was because engineers had had such a free hand in architecture in India that there were so many marks of failure. But, on the other hand, he thought that even if their best architects were to put their best efforts into purely European characteristics for buildings in India, they would fail, for the reason he had stated. To be successful an architect must seriously study the traditional architecture of the country. It was a difficult subject, and difficult to grasp properly; but he believed that such grasp was really an essential secret of success. He thought they would have observed that from some of the illustrations shown that evening: many of them showed that architects had realised that fact, and had endeavoured to *study* (not exactly to *reproduce*) the traditional characteristics; and in proportion as they had done so they had approached success. With regard to corrugated iron roofs, and the practice referred to by Mr. Ransome of painting them red so as to "look like tiles," of course that was a childish superstition unfortunately but too prevalent, and a standing evidence of its failure. He had, however, seen corrugated iron in India treated very successfully both in appearance and from a practical standpoint. He had recollections of some bungalows in which there was no attempt to imitate tiles or anything of that kind, but the iron was painted white with the idea of keeping off the heat, and the effect æsthetically was very good. As regards hollow roofs and walls, he happened to know instances where the practice of double roofing had been adopted very successfully in India. With regard to Mr. Ransome's remark as to the difficulty of ventilating such a cavity, he had always been under the impression that if the air space was to afford protection against variations of temperature, endeavour should be made to seal it, so as to prevent a current of air passing through. If the air could be confined it would form a non-conducting cushion. He entirely agreed with Mr. Slater's remarks about slag wool, and he should be surprised if it were not used in India in the way suggested; he did not know whether it was so used, but Mr. Ransome could doubtless tell them. The beautiful slide they had seen on the screen of the brickwork in a building at Ludhiana showed a striking characteristic of the native Indian worker—viz. his extreme patience. He had no idea of hurrying; he seemed in fact to have no idea of time, but would patiently work for months and years at the most intricate detail without wearying. As to the Taj Mahal he could not say a word in addition to the praise which had been so eloquently bestowed upon it by Mr. Ransome and Mr. Chisholm, but he could confirm what they had said; no photograph, no drawing, no painting, no model that he had ever seen conveyed the slightest idea of the charm of that building. One might stand before it for hours entranced with its beauty. He was much impressed with the quality which Mr. Ransome had expressed so aptly in those few words—viz. "the power of simplicity" which the building showed. It was indeed a monument to the power of simplicity. Yet upon a close inspection it would be found that that building would bear examination almost with the microscope for the beauty and refinement and intricacy of its detail. He was a little disappointed that Mr. Ransome had not said more about the bungalows of India. He might purposely have confined himself to the more monumental subjects, but to architects interested in domestic architecture as applying to Englishmen's homes there was in the residential bungalows of India a great deal of interest. Many of the little hill bungalows he had seen—erected without any conscious effort after picturesqueness—seemed to have struck that quality naturally. Many of them were really very effective, but they were absolutely simple; there was no striving after effect; the picturesque had come to them as it had come to our English villages. These buildings were to a very large extent the work of Europeans as regards the design, but the structure was of course the work of natives. He had very great pleasure in supporting the vote of thanks to Mr. Ransome.

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* "Proposed School of Art at Bombay," Transactions 1867–68, page 83.

* "On Buildings for European Occupation in Tropical Climates, especially India," Transactions 1867–68, p. 197.

Mr. W. HOWARD SETH-SMITH [*F.*] said he did not think he had even the claim of the last speaker to justify his making any remarks upon the subject of the Paper, for he had never been to India. At the same time the discussion had brought out one or two points which naturally occurred to one's mind: one was that the subject had been handled by Mr. Ransome chiefly to illustrate the *civil* architecture of India, and not the domestic, and therefore, perhaps, Mr. Atkin Berry's desires might have fulfilment in the future if they had the advantage of Mr. Ransome's kindly coming again and giving them more information on that particular subject. In relation, however, to the civil architecture he questioned very much whether there was any great advantage in endeavouring to copy—or to develop—the indigenous styles of civil work. Those styles had been almost wholly *ecclesiastical.* Mr. Chisholm had just been telling him that nearly the whole of the Saracenic—or the Hindoo—architecture there was on temples, tombs, or palaces; and the palaces were very few in number, and chiefly at Benares. Therefore there was just that point about it, which they would be glad to hear Mr. Ransome's opinion upon, viz. whether there was any use on the part of European architects in attempting to work on the lines suggested, or whether the effort to do so was likely to end in success. Was it any use their attempting to work on the traditional lines of Hindoo architecture? Would it not be very much better if they were to throw aside—as Mr. Chisholm had said—all *tradition,* and endeavour to treat new civil buildings from the scientific point of view, and upon the conditions which were necessary—those conditions which Mr. Ransome had so ably pointed out to-night? They should also like to hear a little more, or to be referred to some sources of information, which would enable them to understand the constructing of domes in the simple manner Mr. Chisholm had spoken of.

Mr. CHISHOLM: I have a little semi-dome under construction now near Sloane Square which anybody can see. It is very small, but it shows the method of construction. It is not more than about half-finished.

The CHAIRMAN: It would be interesting if you could in a few words describe the construction to the Meeting.

Mr. CHISHOLM: The dome, if it is tied at the bottom with a circular tie, becomes perfectly stable ring by ring as it rises. With the foot tied in, it resembles a number of men standing in a circle leaning forward against each other. So long as the feet are held against something to prevent slipping, they can lean forward to a very considerable extent without falling, supporting each other by the pressure at the shoulders. The dome may not be quite stable as it rises, on account of the elasticity of the materials; there is a tendency of the inner rings to sink from undue pinching at the shoulders, and this may cause horizontal cracks on the extrados. If grouted as they appear, the stability is not endangered. The semi-dome under construction to which I have alluded the bricklayers objected to turn without a centre; but as soon as they imbibed the principle of construction they set to work at once. The semi-dome is a more difficult piece of construction than the whole-dome, because it exerts a slight outward thrust. The two inner corners require lateral support; with a good arch to give this support there is nothing to fear, and the moment after closure stability is attained by these two corners becoming part of an arch from wall to wall. I think I explained all this once before—many years ago—at the Institute.*

Mr. E. W. HUDSON [*A.*], referring to the point as to the desirability of adopting the style of architecture indigenous to the country, asked whether as conquerors of India they were leaving upon the soil of that country the impress of their occupation so that in generations to come when the buildings there were probably in ruins, there would be the same evidence of British occupation as there was now in their own country of the Roman rule. Were they justified in adopting that style and carrying it out in the way in which it had been carried out; and if not, what was the alternative?

Mr. SETH-SMITH asked whether Mr. Ransome would mind giving them his opinion upon the merits of the competition designs which had been thrown upon the screen—from the standpoint, that is to say, of the conditions which he had laid down as essential. Some of them appeared to be very beautiful as well as very suitable to the conditions which he said were essential.

The CHAIRMAN remarked that he was afraid if they asked Mr. Ransome to do that it might lead to a very long discussion afterwards as to the relative conditions of the different designs.

Mr. JAMES RANSOME [*F.*], replying to the last speaker, said he was afraid there was not sufficient time left them that evening to deal with the question of the competition drawings. He thanked the Meeting for the kind attention it had given to his Paper, and said he was very gratified to know that it had been found interesting. The subject was one of immense interest to him; but he had been a little fearful that his fellow architects in England might find it somewhat dry. The discussion which had taken place had been of considerable use to him. In India they suffered from lack of discussion—from lack of interest in the subject. People there were rather apt to take a design and say, "That is ugly," or "That is pretty," and to go no farther into the matter. If they were asked why it was ugly, or why it was pretty, or why it was suitable, or why unsuitable, they seemed to think that that had nothing to do with the subject. If it pleased them, it was good architecture; if it did not please them, then it was bad, so far as they were concerned. As to the desirability of copying the native work, that was a very difficult question indeed. His feeling was that as they occupied India they ought so to build as to leave their mark there; but he also felt that they ought not to leave their mark in the way they sometimes did! There was, as he had tried to point out, much in the native work that was very useful, and, even more, that was beautiful He thought himself that he should always copy what was useful in the native work, even if the result were such as to make some mongrel architecture. If they were patient in going upon those lines—working chiefly for use and then trying to beautify, putting the style of architecture second—in time they should arrive at something that would leave a satisfactory mark on their occupation of India. It was not, however, one man's work, or twenty men's work; it had to grow as all other styles had had to grow. He thought that was the right attitude. He had not touched much upon "bungalows" because he hardly agreed that they were beautiful, as a rule. He had been trying to recall instances of beautiful bungalows, but he could not do so. Nature often made them very beautiful.

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* "New College for the Gaekwar of Baroda, with Notes on Style and Domical Construction" [Transactions 1882–1883, p. 141]. Also in "Baroda Palace," pt. ii., Remarks on the Principles of Domical Construction, with illustrative diagrams [Journal R.I.B.A. 11th June 1896, pp. 445 *sqq.*].

Sometimes, if their old roof had been left on—on account of the cost of putting on a new one—if the old shingles remained, they had mellowed and looked very well; but he did not think much of the modern up-to-date bungalow. He had acquired a house at Simla and tried to make it a beautiful bungalow, but he was afraid it was not. The best thing to do with the Indian bungalows was to cover them up with creepers; they would then certainly get a very picturesque effect. But Europeans in these days spend so little time in India that they will not spend much money on their buildings. He had tried to find out hollow walls in Indian buildings, but had not been successful. There were double roofs, of course, but that was hardly what he meant; he was dealing more particularly with the ordinary flat concrete roof, which was, as a rule, solid; and then he thought that if two thicknesses of concrete could be introduced instead of one, it must undoubtedly lessen the temperature transmitted through the roof. The feeling in India was that unless the hollow spaces were ventilated, they would get no advantage from them. Slag wool was not very much used. It would, of course, be a most excellent thing to put in; but things were very slow in India, and he could call to mind no instance of slag wool being used in building there. With regard to his remark about the dome being, under ordinary circumstances, not an economical form of roof, he had referred more to the restrictions that the domed roof very often placed upon the plan. If they were given a certain square area to cover, then very often the dome was an economic form of roof; but if they had to square their plans so as to cover the whole with domes, it became another matter.

9, Conduit Street, London, W., 28*th Jan.* 1905.

CHRONICLE.

The President's "At Home."

The "At Home" held by the President, Mr. John Belcher, A.R.A., at the Institute on the 16th inst. passed off successfully, and proved in every respect as agreeable and as much appreciated as these reunions have ever been since their inauguration by Sir Aston Webb in the first year of his presidency. Notwithstanding the severity of the weather—peculiarly painful and disagreeable on the 16th—members came up from all parts of the country, and there was no perceptible decrease in the numbers present compared with previous occasions. Of exceptional interest was the special show arranged by the President of sketch models and replicas in miniature of various examples of sculptural decoration designed in unison with architecture in modern work. This question of the association of sculpture with architecture, briefly touched upon by the President in his Address last November, is to be again brought before the Institute at the General Meeting of the 15th May next, when a Paper is to be read on the subject. Meanwhile all who partook of the President's hospitality on the 16th inst. are indebted to the gentlemen who contributed for their entertainment such an interesting display of the sculptor's art as applied to the decoration of buildings. The following is a list of the artists represented and of the objects exhibited on the occasion:—

Mr. Hamo Thornycroft, R.A.—

- Sketch Model for a Memorial now being erected in Durban, S. Africa, to the four Natal Volunteer Regiments.
- Sketch Model for the Bishop Creighton Memorial.

Mr. George Frampton, R.A.—

- Four Sketch Models for the Spandrils on the entrance of the Art Galleries, Glasgow (Mr. John W. Simpson, architect).
- Two Sketches for the Spandrils on the entrance to Electra House (Mr. John Belcher, A.R.A., architect).
- One full-size Model of St. George for bronze erected at Radley College (Mr. T. G. Jackson, R.A., architect).
- Photographs of various Monuments and Architectural Figures.
- One Model for Wood Capital (Mr. C. Harrison Townsend, architect).

W. Goscombe John, A.R.A.—

Model of a Mural Memorial to the late Canon Guy, erected in the Chapel of the Forest School, Snaresbrook.

Model of a Panel of "Spring," carved in Caen stone and coloured, for a chimney-piece (Professor W. R. Lethaby, F.S.A., architect).

Sketch Model for a Memorial to the King's Liverpool Regiment to be erected at Liverpool.

Sketch Model for a group of statuary in majolica, the "Baptism of Christ" (Mr. R. W. Schultz, architect).

Mr. Alfred Drury, A.R.A.—

Bronze Statuette "Spring" (for marble figure), life-size, placed in Public Gardens, Auckland, N.Z.

Two Panels, "The Fine Arts" and "Philanthropy," for insertion on Pedestal of Statue of the late Sir Thomas Elder.

Statuette "Liberty" held in the hand of "Victory," New War Office (Photograph).

First Suggestion for Figure of "Peace," one of a series of eight groups for New War Office, to be placed on pediments, representing on one side "The Fatherless and Widow," and on the other "The Message of Peace."

Working Model for above in Plaster—to be executed in Portland stone, height of figures 10 ft. 6 in., surmounting Pediment.

Mr. H. Pegram, A.R.A.—

Model for Lunette over a Door inside the Union Bank of Australia, Cornhill.

Models of Bronze Panels placed over the Organ Stops, St. Paul's Cathedral.

Photographs of the great Candelabra at the west end of St. Paul's Cathedral.

Photograph of "Industry," Panel at Entrance of Imperial Institute.

Mr. Bertram Mackennal—

Sketch Model of Giant for Winchester House.

Sketch Model of two of the Figures on the Tower of the Royal Friendly Society's Building.

Two small Sketches, "Peace" and "War," part of Memorial to Queen Victoria.

A Model of Doorplate, and nine bronze Electric Switches.

Small Figure for pedestal representing "Art."

Photograph of Sketch for Tympanum for New Public Offices, Westminster, now in course of construction.

Sketch of Figure (decorative) from Pedestal of Queen's Statue.

Mr. F. W. Pomeroy—

Sketch Model of Pediment, Front of Belfast Town Hall (Mr. A. B. Thomas, architect).

Sketch Model of Memorial to Lord Dufferin and Ava, Belfast, to be erected in City Square (Mr. A. B. Thomas, architect).

Sketch Model of Revolving Globe for terminal of Dome on the New Electra House Buildings, London (Mr. John Belcher, A.R.A., architect).

Sketch Models of Two Pediments and of Two Pediment Figures for New Technical College, Liverpool (Mr. E. W. Mountford, architect).

Mr. F. Derwent Wood—

Sketch Model for a Mural Monument.

Sketch Models for the Figures on the New Kelvingrove Art Galleries, Glasgow (Messrs. Simpson & Allen, architects).

Sketches for Figures of "Labour" and "Prudence" on Commercial Buildings, Bothwell Street, Glasgow.

Mr. Henry Poole—

Design Model of a Group "Mermaids" executed in Portland stone for Cardiff Town Hall (Messrs. Lanchester, Stewart, & Rickards, architects).

Mr. Albert Hodge—

Photograph of Cartouch and Figures, and Cherubs' Heads &c. (Mr. John W. Simpson, architect).

Mr. C. L. Hartwell—

Model of Figure on Monument to the Memory of the Officers, Non-commissioned Officers, and Men of the Royal Sussex Regiment who fell in the S. African War (Mr. John W. Simpson, architect).

Dinner to Sir Aston Webb, R.A.

A Complimentary Dinner, given by the President and past and present Members of Council, to Sir Aston Webb, R.A., in recognition of the distinction lately conferred upon him by His Majesty, took place at the Savoy Hotel on the 17th inst. Over fifty guests were present, including, besides the principal guest, two other past Presidents, Sir William Emerson and Mr. J. Macvicar Anderson.

THE PRIZES AND STUDENTSHIPS 1905.

Council's Deed of Award.

The Designs and Drawings submitted for the Institute Prizes and Studentships are now on exhibition in the Gallery of the Alpine Club (entrance in Mill Street, Conduit Street, W.). The Council's Deed of Award, read at the General Meeting of the 23rd January, gives particulars of the competitions and the results thereof as follows:—

The Royal Institute Silver Medals.

(i.) *The Essay Medal and Twenty-five Guineas.*

Fourteen Essays on "The Development of Architectural Art from Structural Requirements and Nature of Materials" were received for the Silver Medal under the following mottoes:—

1. "Arch."
2. "Beauty is Truth, Truth Beauty."
3. "Boots? Spurs."
4. "Brunelleschi."
5. "Dil Aram."
6. "Hawk."
7. "I bide my time."
8. "Ictinus."
9. "Νίκη "Απτερος."
10. "Roslyn."
11. "S. Edmund King and Martyr."
12. "Suum Cuique."
13. "Ubique."
14. "X."

The Council have awarded the Medal and Twenty-five Guineas to the author of the Essay submitted under motto "Dil Aram" [*Miss Ethel Charles [A.], Cliff Cottage, Flushing, near Falmouth*]; a Prize of Ten Guineas and a Certificate of Hon. Mention to the author of the Essay bearing the motto "Beauty is Truth, Truth Beauty" [*A. Romney Green, Foundry Meadow, Haslemere*]; and Certificates of Hon. Mention to the authors of the Essays submitted under the mottoes respectively of "Brunelleschi" [*J. Jeffrey Waddell, Drumoyne, Uddington, N.B.*]; "Hawk" [*J. Murray Kendall,* 38 *Canfield Gardens, S. Hampstead, N.W.*]; "I bide my time" [*Leslie Patrick Abercrombie,* 13 *Victoria Terrace, Prince Alfred Road, Warertree*]; "Νίκη Ἄπτερος" [*Walter H. Godfrey,* 8 *Glebe Place, Chelsea, S.W.*]; "S. Edmund King and Martyr" [*Cyril E. Power* [*A.*], 112 *Kenilworth Court, Putney, S.W.*]; and "Ubique" [*Hugh P. G. Maule,* 16 *Great Marlborough Street, W.*].

(ii.) *The Measured Drawings Medal and* £10 10*s*.

Seventeen sets of Drawings were sent in of the various buildings indicated, and under mottoes as follows:—

1. "Auld Reekie":—5 strainers (Banqueting Hall, Kensington).
2. "Clyde":—6 strainers (St. Michael's Parish Church, Linlithgow).
3. "Culdee":—6 strainers (Dunblane Cathedral).
4. Device of Circles:—5 strainers (Church of St. Mary, Cartmel, Lancs.).
5. Device of a Red Disk:—6 strainers (The Pazzi Chapel, Santa Croce, Florence).
6. "Duomo":—4 strainers (Peristyle to Dome, St. Paul's Cathedral).
7. "Ell":—6 strainers (Morden College, Blackheath).
8. "Erin II.":—6 strainers (Saint Benet's, Paul's Wharf, E.C.).
9. "Lux":—4 strainers (St. James's Church, Piccadilly).
10. "1903":—5 strainers (Greenwich Hospital).
11. "Porton-Craig":—5 strainers (Church of St. Monance, Fifeshire).
12. "Sundial":—6 strainers (Church of St. Peter, Lowick, Northants).
13. "The Nilghai":—4 strainers (Church of St. Swithin, Worcester).
14. "Thames":—5 strainers (Somerset House).
15. "Unicus":—6 strainers (Haddon Hall, Derbyshire).
16. "Wharfedale":—4 strainers (Bolton Percy Church).
17. "Y":—4 strainers (Church of St. Alphege, Greenwich).

The Council have awarded the Silver Medal and Ten Guineas to the delineator of Haddon Hall, Derbyshire, submitted under the motto "Unicus" [*Edward G. Wylie,* 39 *Airlie Gardens, Partickhill, Glasgow*], and Certificates of Hon. Mention to the delineators of Somerset House, London, and the Pazzi Chapel, Santa Croce, Florence, submitted under the motto "Thames" [*W. Harold Hillyer, Lyncroft, Shortlands, Kent*], and the device of a Red Disk [*Arthur R. H. Jackson, Royal College of Art, South Kensington, S.W.*].

THE TRAVELLING STUDENTSHIPS.

(i.) *The Soane Medallion and* £100.

Twelve Designs for a Royal Palace were submitted under the following mottoes:—

1. "Benedick":—6 strainers.
2. "Concrete":—6 strainers.
3. "Crumpets":—6 strainers.
4. Double B (device):—7 strainers.
5. "Ellipse":—6 strainers.
6. "H. M.":—5 strainers.
7. Lion rampant (device):—5 strainers.
8. "Nil Desperandum":—5 strainers.
9. "Omar":—6 strainers.
10. "Q.E.D.":—6 strainers.
11. "Roy":—6 strainers.
12. "Vive le Roi!"—6 strainers.

The Council have awarded the Medallion and (subject to the specified conditions) the sum of One Hundred Pounds to the author of the design bearing the motto "Crumpets" [*S. Herbert Maw, Wentworth Villa, Wentworth Street, Bolton, Lancashire*], and Certificates of Hon. Mention to the authors of the designs bearing the motto of "Benedick" [*Robert White Pickering,* 25 *Torrington Square, W.C.*], and the device of a "Lion rampant" [*W. S. A. Gordon,* 20 *Trafalgar Square, Chelsea*].

(ii.) *The Owen Jones Studentship and* £100.

Three applications were received for the Owen Jones Studentship from the following:—

1. W. B. Brown, jun.:—6 strainers.
2. James McLachlan:—6 strainers.
3. Harry Morley:—6 strainers.

The Council have awarded the Certificate and (subject to the specified conditions) the sum of One Hundred Pounds to *Mr. H. Morley,* 66, *Sydney Street, S. Kensington, S.W.*

(iii.) *The Pugin Studentship and* £40.

Seven applications were received for the Pugin Studentship from the following:—

1. A. R. Barker:—6 strainers.
2. Norman Culley:—5 strainers.
3. H. A. Dalrymple:—6 strainers.
4. Frank Dyer:—6 strainers.
5. E. Garratt:—6 strainers.
6. W. H. Godfrey:—6 strainers.
7. L. Wilkinson:—6 strainers.

The Council have awarded the Medal and (subject to the specified conditions) the sum of Forty Pounds to *Mr. Edward Garratt,* 87, *Penfold Street, Darlaston, nr. Birmingham,* and a Certificate of Hon. Mention and £10 10*s*. to *Mr. Hugh A. Dalrymple,* 45, *Judd Street, Bloomsbury, W.C.*

(iv.) *The Godwin Medal and* £65.

One application was received for the Godwin Bursary from *Mr. F. R. Hiorns* [*A.*], of 71, *Pepys Road, Wimbledon, S.W.*, and the Council have awarded to him the Medal and (subject to the specified conditions) the sum of £65.

(v.) *The Tite Certificate and* £30.

Nineteen Designs for an Hotel Lounge and Staircase were submitted under the following mottoes:—

1. "ABE":—3 strainers.
2. "Archilaus":—3 strainers.
3. "Atrium":—3 strainers.

4. "Bathon":—4 strainers.
5. "Dombey":—2 strainers.
6. Device of an Anchor:—4 strainers.
7. Device of a Thistle:—3 strainers.
8. "E Angle":—4 strainers.
9. "Martlet":—3 strainers.
10. "Moa":—2 strainers.
11. "Nit":—3 strainers.
12. "Oracle":—2 strainers.
13. "Palladio":—3 strainers.
14. "Pedestal":—1 strainer.
15. "Roma":—4 strainers.
16. "Scala":—3 strainers.
17. "Sol":—2 strainers.
18. "Veritas":—2 strainers.
19. "Vista":—3 strainers.

The Council have awarded the Certificate and (subject to the specified conditions) a sum of Thirty Pounds to the author of the design bearing the motto "Palladio" [*Robert Atkinson, 29, Sherwin Road, Lenton, Nottingham*], a Certificate of Hon. Mention and £5 5*s*. to the author of the design bearing the motto "E Angle" [*Alick G. Horsnell, South Primrose Hill, Chelmsford, Essex*], and a Certificate of Hon. Mention to the author of the design bearing the motto "Vista" [*C. L. Wright, 66, Bolingbroke Road, West Kensington, W.*]

THE ARTHUR CATES PRIZE: £40.

Two applications for the Arthur Cates Prize were received from the following gentlemen:—

1. Vincent Hooper:—6 strainers.
2. F. Winton Newman:—6 strainers.

The Council have awarded the Prize to *Mr. F. Winton Newman* [*A.*], 31, *Savernake Road, Hampstead, N.W.*, and a Certificate of Hon. Mention to *Mr. Vincent Hooper* [*A.*], 19, *Elms Road, Redhill, Surrey.*

PRIZE FOR DESIGN AND CONSTRUCTION.

The Grissell Gold Medal and £10 10s.

Five designs for a Winter Garden in Iron and Glass were submitted under the following mottoes:—

1. "Irony of Fate":—3 strainers.
2. "Jachin":—3 strainers.
3. "Onward":—5 strainers.
4. "Rivet":—2 strainers.
5. "Tectum":—6 strainers.

The Council have awarded the Medal and Ten Guineas to the author of the design bearing the motto "Onward" [*James A. M. Hunter, Schoolhouse, Portlethen, by Aberdeen*].

THE ASHPITEL PRIZE 1904.

The Council have, on the recommendation of the Board of Examiners (Architecture), awarded the Ashpitel Prize to *Mr. Charles Lovett Gill*, 17, *Albert Street, Regent's Park, N.W.* Mr. Gill was registered *Probationer* in 1901, *Student* in 1902, and passed the Final Examination in November 1904.

THE TRAVELLING STUDENTS' WORK.

Soane Medallist 1903.—The Council have approved the drawings executed by Mr. Edwin F. Reynolds, who was awarded the Medallion in 1903, and who studied in Egypt, Greece, Italy, and Turkey.

Pugin Studentship 1904.—The Council have approved the work of Mr. F. C. Mears who was elected Pugin Student for 1904, and who studied in Somersetshire.

The Deed of Award bears date 23rd January 1905, and is signed by Thos. E. Collcutt, *Chairman*; John Slater, Wm. Flockhart, Henry T. Hare, *Members of Council*; Alexander Graham, *Hon. Secretary*; W. J. Locke, *Secretary.*

Architects' Registration.

The following particulars concerning the position of architects in European countries and the United States, which have been collected for the purposes of the Institute Committee now sitting on the question of Registration, may be found interesting to the General Body of Members:—

GERMANY.

The profession is free.

Architects who have studied in the State High Schools can enter for the examination known as *The Government Architect* (Staat Baumeister) Examination.

This title is obligatory for Architects of Public Works. It is now almost always required for City Architects. Ordinary practising Architects desiring to hold an official position pass this examination.

The three Technical High Schools of Berlin, Hanover, and Aix-la-Chapelle grant this *diploma* after a course of four years. The other Technical Schools do not grant a diploma, but a *certificate* on leaving the school.

AUSTRIA.

The profession is free, as the Architect is regarded as an artist.

There are Government diplomas, but they are little sought after by artists, as they only have a *scientific* value.

HUNGARY.

The profession is free.

But an Architect holding an official position must be provided with a diploma granted by the Polytechnic School of Buda-Pesth, after a four years' course.

The Courts only recognise as official experts or "Directors of Buildings" holders of this diploma.

HOLLAND.

The profession is free.

The State Polytechnic School of Delft grants a diploma of Architect-Engineer after a four years' course. This is in no way obligatory.

Belgium.

The profession is free.

No diploma at all.

Switzerland.

The profession is free.

No diploma at all.

Italy.

Compulsory diploma.

Granted by the Government on the recommendation of the Examination Commission of the Government "Schools of Application." The scientific side is dominant. The same diploma is given to the Architect as to the Engineer.

Spain.

Compulsory diploma.

Architect must pass examinations after his studies, and be provided with the diploma granted by the only two schools that exist in Spain: the Superior School of Architecture, Madrid, and the School of Architecture, Barcelona.

Diploma conferred through Minister of Public Instruction.

Portugal.

The profession is free.

Diplomas granted by the State Schools of Lisbon and Oporto, but not obligatory in any way.

Sweden and Norway.

The profession is free.

No diploma at all.

Russia.

Compulsory diploma or certificate.

Diploma granted by the Imperial Academy of Fine Arts, the Moscow School of Architecture, and the State Polytechnic Schools.

Certificate granted to *boná-fide* practitioners and assistants after passing an examination held by the Technical Committee of the Minister of the Interior. This does not give the title of Architect, but the right only to practise.

Greece.

The profession is free.

The Government gives no diploma, but the diploma given by the School of Art of Athens is sought for only by those who wish to occupy an official position.

Turkey.

The profession is free.

United States of America.

The profession is free—except in the State of Illinois, where Architects must have a licence. This licence is given by examination by the State Jury, or from the diploma of the University of Illinois.

France.

The profession is free.

The Government gives diplomas to the nominees of the École des Beaux Arts, and the title "Architecte diplômé par le Gouvernement"; but these diplomas give no privileges or rights whatever. And no official need possess this diploma, or any other certificate granted by any examining body.

Comparative Table.

Profession is absolutely free in :	Profession is free, but Government officials require diploma in :	Diploma is required in :
Austria.	Germany.	Italy.
Holland.	Hungary.	Spain.
Belgium.	Greece.	Russia.
Switzerland.		Illinois, New Jersey, California (U.S.A.).
Great Britain.		
Sweden and Norway.		
United States (save in three States).		
France.		
Turkey.		
Portugal.		

Seventh International Congress of Architects, London, 1906.

The Council have voted a sum of £500 for the purposes of the International Congress of Architects to be held in London next year.

The following notice has been sent to all members of the Permanent International Committee, to Hon. Corresponding Members of the Institute, and to the Secretaries of all Foreign Architectural Societies:—

PRELIMINARY NOTICE.

Origin of the Congress.

At the closing meeting of the Sixth International Congress of Architects, Madrid, 1904, the Royal Institute of British Architects was commissioned by the International Bureau to organise the Seventh Congress in London in 1906, and members of the Royal Institute were appointed as members of the Permanent International Committee to form the nucleus of a Committee of Organisation.

The Council of the Royal Institute of British Architects have appointed additional members, and the Executive Committee have been formed, as will be seen below.

The Executive Committee have approached His Majesty the King, who has graciously consented to confer his patronage on the Congress, and H.R.H. the Prince of Wales has agreed to accept the position of Honorary President. Several distinguished personages, at the head of whom is H.R.H. the Duke of Connaught, have accepted the Committee's invitation to act as Hon. Vice-Presidents, and the Committee are now forming a General Committee of eminent architects, painters, sculptors, and engineers.

The Executive Committee are in communication with the various Foreign Architectural Societies with a view to obtaining their co-operation in the Congress.

PROGRAMME.

The Congress will be held from the 16th to the 21st July 1906.

The Programme of the Congress will consist of—

- The Inaugural Meeting.
- The discussion of Architectural questions of international importance, chosen and approved by the Executive Committee. A list of these themes will be published in the next notice, as soon as they have been selected.
- Excursions to places of interest outside of London.
- Visits to buildings and monuments in London.
- One or more Soirées or Conversaziones.
- An Exhibition of Architectural Art.
- A Farewell Banquet.

Ladies will be admitted to the Inaugural Ceremony, Excursions, and visits.

It is hoped to constitute a Committee of Ladies, who will provide for the comfort of ladies visiting London for the Congress.

RULES.

As in previous Congresses, there will be two classes of Members :—

Contributing Members (*Membres Donateurs*) who contribute not less than £4 to the funds of the Congress.

Subscribing Members (*Membres adhérents*) who subscribe not less than £1.

Architectural Societies may inscribe themselves as Contributing or Subscribing Members by being represented by one or more delegates.

Members will be presented with the usual cards of identity, badges (*insignes*), and publications of the Congress.

This announcement must be regarded merely as preliminary, and the arrangements above mentioned are subject to revision. A more detailed programme will be issued in a few months' time.

The constitution up to the present date of the Committee of Patronage for Great Britain, the General Committee, and the Executive Committee is appended.

JOHN BELCHER, A.R.A., *President*.
W. J. LOCKE, *Secretary*.

Patron.

His Majesty the King.

Hon. President.

H.R.H. the Prince of Wales.

Committee of Patronage for Great Britain.

Honorary Vice-Presidents.

H.R.H. the Duke of Connaught.
H.H. the Maharajah of Jaipur.
His Grace the Archbishop of Canterbury.
His Grace the Archbishop of York.
His Grace the Duke of Devonshire.
The Most Hon. the Secretary of State for Foreign Affairs.
The Most Hon. the Marquis of Ripon.
The Right Hon. Lord Windsor.
The Right Hon. Lord Esher.
Lord Balcarres, M.P.
Sir Edward Poynter, P.R.A.
Sir Laurence Alma-Tadema, R.A.

General Committee.

Professor GEORGE AITCHISON, R.A
Mr. R. PHENÈ SPIERS, F.S.A.
Sir Benjamin Baker, K.C.B., F.R.S
Sir John Wolfe-Barry, K.C.B., F.R.S.
Sir William Richmond, K.C.B. R.A.
Sir William Emerson.
Mr. W. Q. Orchardson, R.A.
Mr. Hamo Thornycroft, R.A.
Mr. George Frampton, R.A.
Mr. Alfred East, A.R.A.
Mr. Solomon J. Solomon, A.R.A.
Mr. J. Macvicar Anderson, F.R.S.E.
Mr. W. E. Riley.
Mr. F. T. Reade.
Mr. F. N. Jackson.
Mr. A. T. Walmisley.
Mr. H. H. Statham.
Mr. Maurice B. Adams.
The President of the Sheffield Society of Architects and Surveyors.
The President of the Leicester and Leicestershire Society of Architects.
The President of the Manchester Society of Architects.
The President of the Glasgow Institute of Architects.
The President of the Northern Architectural Association.
The President of the Bristol Society of Architects.
The President of the Nottingham Architectural Society.
The President of the Royal Institute of the Architects of Ireland.
The President of the Liverpool Architectural Society.
The President of the Birmingham Architectural Association.
The President of the Leeds and Yorkshire Architectural Society.
The President of the Devon and Exeter Architectural Society.
The President of the Dundee Institute of Architecture, Science, and Art.
The President of the York Architectural Society.

The President of the Cardiff, South Wales, and Monmouthshire Architects' Society.
The President of the Aberdeen Society of Architects.
The President of the Edinburgh Architectural Association.
The President of the Ulster Society of Architects.

And the *Executive Committee*, i.e.—

Mr. JOHN BELCHER, A.R.A., *President*.
Sir ASTON WEBB, R.A.
Mr. ALEXANDER GRAHAM.
Mr. T. E. COLLCUTT.
Mr. H. T. HARE.
Mr. JOHN SLATER.
Mr. LEONARD STOKES.
Mr. JOHN W. SIMPSON.
Mr. Thos. W. Cutler.
Mr. Reginald Blomfield, A.R.A.
Mr. Mervyn Macartney.
The President of the Architectural Association.
Mr. W. J. LOCKE, *Secretary*.

Names printed in small capitals are those of Members of the "Comité Permanent des Congrès Internationaux des Architectes."

The Strand Improvement.

The following memorandum has been drawn up for presentation to the London County Council:—

> We, the undersigned, are anxious that the improvement of the Strand should be carried out in a manner worthy of so great an opportunity.
>
> We desire to express our opinion that the frontage-line now proposed by the London County Council will have a bad perspective effect, and we trust it may not be too late for the Council to adopt some plan showing better consideration for the position of the churches of St. Mary-le-Strand and St. Clement Danes.
>
> We also desire to protest against the height of the buildings already begun, and to express our hope that on the rest of the frontage the new buildings may not be so lofty as to overpower the two churches and Somerset House, which are, and should remain, the principal ornaments of the Strand.

Edward J. Poynter.
Hamo Thornycroft.
T. G. Jackson.
L. Alma-Tadema.
Ernest Crofts.
Aston Webb.
Ernest A. Waterhouse.
W. B. Richmond.
George Frampton.
H. H. Armstead.
G. H. Boughton.
Robert W. Macbeth.
J. W. Waterhouse.
Marcus Stone.
G. F. Bodley.
William F. Yeames.
Fred. A. Eaton.
R. Norman Shaw.
Thomas Brock.
Ernest Newton.
John Belcher.
Beresford Pite.
Basil Champneys.
Reginald Blomfield.
Henry T. Hare.
C. F. A. Voysey.
Walter Crane.
Mark H. Judge.

Standard Specification for Portland Cement.

The Engineering Standards Committee, representative of the Institution of Civil Engineers, the Institution of Mechanical Engineers, the Institution of Naval Architects, the Iron and Steel Institute, and the Institution of Electrical Engineers, has prepared a Standard Specification for Portland Cement. The Institute was represented on the committee dealing with this matter by Mr. Lewis Solomon [*F.*]. After some months of deliberation the committee, which consisted of some of the best-known engineers and Portland cement manufacturers, settled upon a standard specification, and a copy has been sent to the Institute for the information of members. The following letter accompanied the specification:—

The Engineering Standards Committee,
16th January 1905.

The Secretary R.I.B.A.

SIR,—I have the honour to hand you herewith for transmission to your Council a copy of the Standard Specification for Portland Cement recently issued by this committee.

In so doing I am desired to request that you will convey to your Council the committee's appreciation of the services rendered by your representative, Mr. Lewis Solomon, during the deliberations of the committee.

The committee trust that they may rely upon the further co-operation of your Council in bringing the enclosed Specification to the notice of the members of your Institute with a view to its adoption where practicable in their practice.—I have the honour to be, Sir, your obedient servant,

LESLIE S. ROBERTSON, *Secretary*.

It is urged on all architects who have not time to write their own specifications of cement or to test their own cement to make use of the specification supplied by the Committee, who are probably the best authorities on the matter in the country, and accordingly to specify their Portland cement as follows:—

"The Portland cement shall be of the quality described in the British Standard Specification for Portland Cement issued by the Engineering Standards Committee.

"The cement shall be that described in Clause 12 of the said Specification as (medium)* setting.

"The term 'consumer' or 'consumers' in the said Specification shall mean (...................., architect).†"

> "* Insert quick, medium, or slow, the three specific times named in the specification, according to the gradation of setting time.
>
> "† Insert the name of the architect."

Preston School Competition.

The conditions of this competition provide that the architect's fee shall include payment for bills of quantities and other surveyor's work, settlement of accounts, and several extra copies of plans.

In reply to a letter from the Institute calling the attention of the Preston Education Committee to the inadequacy of the remuneration offered, the Director writes that he cannot hold out any hope that his committee "will modify the remuneration offered to architects, or its terms."

In these circumstances members are requested to refrain from taking part in this competition.

American Appointment for Sir C. Purdon Clarke [*F.*].

Sir Caspar Purdon Clarke, C.I.E. [*F.*], Director for Art of the Victoria and Albert Museum, South Kensington, has been offered and has accepted the appointment of the presidency of the National Museum of America, the Metropolitan Museum in Central Park, New York, in succession to the late Director, General di Cesnola. Sir C. Purdon Clarke is to take up his new duties in the autumn.

National Registration of Plumbers.

From the Clerk of the Worshipful Company of Plumbers has been received a facsimile of the portable certificate for the year 1905 issued by the Company to registered plumbers. In the chief cities and towns of the United Kingdom the certificate bears the signature of the Secretary to the local district council. The colour of the date across the face is varied each year to facilitate identification. The certificate, or Registration Ticket, bears on the outside, printed in gold on a black ground, the words "National Registration of Plumbers" and the arms of the Plumbers' Company. Inside are the name, address, and signature of the holder and the signature of the Clerk to the Company. It is requested that complaints, if any, of work done by registered plumbers be addressed to the Company in order that they may deal with the matter in the public interest.

The late Thomas Blashill [*F.*].

Mr. Thomas Blashill died on Friday, the 20th inst., after a few days' illness, in his seventy-fifth year. The event was wholly unexpected, for as lately as the previous week he had attended at the Institute a conference with the Heating and Ventilating Engineers, and was then apparently in the best of health.

Mr. ALEX. GRAHAM, F.S.A., *Hon. Secretary*, in making formal intimation of the decease at the General Meeting of the 23rd inst., said :—It is my melancholy duty to announce the decease of our esteemed colleague Mr. Thomas Blashill. He was elected an Associate in 1866 and a Fellow in 1877 ; for several years he did active and good service on the Institute Council, was a member of the Board of Examiners for Architecture and of the Statutory Board, and had served on the Standing Committees of the Institute. I am quite sure there is no member present—indeed, no member of this Institute—who has not a pleasant word to say for Thomas Blashill. During the many years that he so honourably fulfilled the responsible duties attaching to the office of Superintending Architect of the London County Council he rendered to us who practise in London so much assistance in setting us right on vexed points of the Building Act that I am quite sure we shall never forget his good services. And not only there, but also here in this room where he was a constant attendant, and always ready to assist us in every way and to take part in our discussions. But whether in Spring Gardens in his official capacity, or here where he was ever a welcome member, he always brought with him an air of good fellowship that never failed him on any occasion ; and I am quite sure that in the pleasant memories we shall always retain of Thomas Blashill we shall carry the thought with us that he was a very good fellow. It is our intention to send to Mrs. Blashill a letter sympathising with her in the great loss she has sustained, and expressing on the part of every member of this Institute our high appreciation of his merits and his worth, and our deep regret at the loss of one who had rendered such eminent services to the profession and to the Institute. I put this as a formal motion that such a letter be sent.

Mr. WILLIAM WOODWARD [*A.*] said :—I only desire to add a few words to Mr. Graham's excellent tribute to the good nature of our friend Mr. Thomas Blashill in one aspect. I remember spending a very pleasant evening with him, and being surprised and delighted at the careful notes and sketches he had always made on his Continental journeys, though he devoted also many hours to the practical part of his visits. I am quite sure if the younger members of the Institute could go through some of the notes made by Mr. Blashill while on his holidays abroad it would do them much good. What Mr. Graham has said about the assistance he was able to render to us at Spring Gardens I thoroughly endorse. Although he was of course controlled to a large extent by the Building Act Committee, he always extended to his fellow architects every possible assistance in the carrying out of their work in London. I can only say for myself that I looked upon Mr. Blashill as a very dear old friend. We all know that he was one of the busiest of men, yet—as is often the case with busy men—he was able to give us the benefit of his presence here and at the kindred institution in Great George Street to read Papers and to help in the discussions. I feel that it is a lesson for all of us that one with such multifarious duties and preoccupations should be able to do so much for his fellow architects and as a member of this Institute.

Mr. E. W. HUDSON : Might I add one word ? As Mr. Blashill was a resident and member of St. Pancras Borough Council I feel that something should be said with regard to the great help and assistance he had been to that district and to its various charities.

He had acted as churchwarden upon more than one occasion, and from the interest that he took in the affairs of that parish with which it was my fortune to be professionally connected I am quite sure Mr. Blashill will be much missed. The work he had done there will remain as a memento of him, and will not soon be forgotten.

The funeral service was held at St. Pancras Church last Tuesday, and the interment took place at Highgate Cemetery. The Institute was officially represented at the ceremony by the Secretary, and there were present numerous members of the Council and ordinary members of the Institute.

A notice of Mr. Blashill's life and work will appear in a future issue of the JOURNAL.

The late George Hurst Stanger [*F.*].

Mr. G. H. Stanger, who died on the 15th inst. at his residence, Merridale Grove, Wolverhampton, at the age of 57, had been a Fellow of the Institute since 1892. He was a native of Nottingham, but had practised in Wolverhampton for over twenty years. He was the architect for the Union Cottage Homes at Wednesford, for the extension of the Burntwood Asylum, works for the Electrical Construction Company at Bushbury, extensions of the out-patient department at the Wolverhampton and Staffordshire General Hospital, the Moseley Village Board School, and the isolation hospital at Harrogate.

REVIEWS.

WALL COVERINGS.

Wall Papers and Wall Coverings: A Practical Handbook for Decorators, Paperhangers, Architects, Builders, and House Owners. By Arthur Seymour Jennings. Imp. 8o. Lond. 1903. Price 7s. 6d. [The Trade Papers Publishing Co., 365, Birkbeck Bank Chambers, High Holborn, W.C.]

To architects this volume is of some interest as well as to those for whom it has been more especially written, the young paperhangers. It is a useful contribution to the literature of one of those trades which are closely connected with the needs of modern domestic building. For by the use of paper or other wall and ceiling coverings a room may be made satisfactory or the reverse. There are many good hints in the chapter on hanging paper. It is not, however, to be expected that all will agree that "very pretty effects may be obtained by sticking common lace window curtains on the walls and then tastefully tinting and bronzing." This, it seems, was invented by an American enthusiast of St. Louis. When, again, Lincrusta-Walton is extolled as "probably the highest class, in beauty and durability, of all relief decorations," the case cannot be argued, since it is a matter of taste. But, to give an opposite opinion, it might be said that for reception-rooms plain coloured papers, or for bedrooms those of the old chintz type, seem better than very "designed" ones; and that for freshness and simplicity, as well as beauty, an ordinary white lining paper coloured with distemper, after it has been hung, is an excellent wall covering provided the condition of the walls and the preparation for the papering and colouring have been well considered. But let it be colour and not always a pale and washed-out "tint" or "colour wash."

H. C. CORLETTE.

MINUTES. VI.

At the Sixth General Meeting (Ordinary) of the Session 1904–05, held Monday, 23rd January 1905, at 8 p.m.—Present: Mr. Thomas E. Collcutt, *Vice-President*, in the Chair, 36 Fellows (including 15 members of the Council), 40 Associates (including 1 member of the Council), 2 Hon. Associates, and visitors—the Minutes of the Meeting held 9th January [p. 184] having been taken as read and put for confirmation, Mr. H. Hardwicke Langston [*A.*] moved that a question he had asked at that meeting and the President's reply thereto be inserted on the Minutes.[*] The Secretary having explained that the matter had only arisen informally, and had consequently been omitted from the Minutes, the motion, seconded by Mr. G. A. T. Middleton [*A.*], was put from the Chair, and upon a show of hands was declared lost, four voting for and seven against it. The Minutes were then signed as correct.

The following Fellows, attending for the first time since their election, were formally admitted by the Chairman—viz. Charles Henry Brodie and William Arthur Aickman.

The Hon. Secretary, having announced the decease of Thomas Blashill, *Fellow*, moved, and it was thereupon

> RESOLVED, That a letter be sent to Mrs. Blashill sympathising with her in the great loss she had sustained, and expressing on behalf of members their high appreciation of his merits and of his worth, and their deep regret at the loss of one who had rendered such eminent services to the profession and to the Institute.

A Paper on EUROPEAN ARCHITECTURE IN INDIA was read by the author, Mr. James Ransome [*F.*], Consulting Architect to the Government of India, and illustrated by lantern slides.

The Secretary having read the Deed of Award of Prizes and Studentships 1905, made by the Council under the Common Seal [*ante*, p. 206], the sealed envelopes bearing the mottoes of successful competitors were opened and the names disclosed.[†]

The Meeting then proceeded to the discussion of Mr. Ransome's Paper above mentioned, and a vote of thanks was passed to the author by acclamation.

The proceedings were brought to a close at 10 P.M.

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[*] Mr. Langston's question had reference to the recent decision of the Court of Appeal in the case of *Robins* v. *Goddard* [*ante*, p. 136], where the construction to be placed on certain clauses of the Institute Form of Contract was in dispute. Mr. Langston was informed at the meeting of the 9th inst. that the matter would be referred to the Professional Defence Committee.

[†] The names will be found printed immediately after the mottoes in the Deed of Award.

USUI·CIVIUM· DECORI·URBIUM

ADDRESS TO STUDENTS. Delivered by the President, Mr. John Belcher, A.R.A., at the General Meeting, 6th February 1905.

Fellow-Students of the Art of Architecture,—

I ADDRESS you all as fellow-students, for with us, as I dare say you know, it is "once a student, always a student."

Our service is not for a term of years; the brief period of formal apprenticeship is followed by another very similar in its abiding purpose to what the Germans of the old-time guilds used to call a youth's Wanderjahre—with this difference, that our period of Wanderjahre, our earnest search after the best, only terminates with life itself. We must always take a watchful interest in all that pertains to our art, and be ready, all of us, old and young alike, to assimilate every real advance, every true development.

To you who are now serving your term of formal apprenticeship I say, Make the most of your opportunities, for they will pass all too quickly. The time thus dedicated to the acquisition of knowledge and the attainment of proficiency, to the training of your powers of observation and imagination, will prove all too short for the end you have in view.

The mistress we serve is a jealous one; and if we would woo her successfully, we must be prepared to make sacrifices and to forego many indulgences. The ordinary amusements and pleasures of youth will often have to give way to the claims of your art, to the duty of sketching or measuring, or to the study of constructive art; in short, you must be ready to avail yourselves of any and every opportunity that may present itself for enlarging your experience and knowledge.

Above all, take your art seriously, for it is only to the earnest student, we may almost say to the devotee, that the veil is lifted that shrouds the mysteries of our art.

It is with the greatest interest that year by year we examine the results of your efforts, and with the best of good wishes that we assign rewards and prizes.

There are many who have not won prizes who yet have accomplished very good work—work which will stand them in good stead in after-life.

To all I would say, "Do not rest upon your laurels; preen your wings for higher flights." The knowledge and discernment you have already acquired are as nothing to the more subtle secrets, the more hidden beauties, that await your earnest search.

I do not now propose, nor is this the occasion, to discuss the course of study necessary for the initial equipment of the architect: that is a matter which is being carefully threshed out by the Board of Education.

Nor will I venture to criticise in detail the admirable drawings submitted: this will be done leniently and sympathetically, I have no doubt, by Mr. A. N. Prentice.

But I do want to take this opportunity to emphasise the importance of a more systematic study of those buildings which are universally recognised as good.

"Quod semper, quod ubique, quod ab omnibus" is a dictum which we may very well borrow from the theological schools and, having borrowed, stick to.

Moreover, I should like to suggest certain methods to be adopted in the study of such examples.

The student's first impulse perhaps is simply to annex the whole subject as "stock" or "copy."

Now certainly it is a very right and proper thing to sketch the building as a whole; but while doing so we must not let our thoughts lie idle; we should endeavour to discover why the subject is beautiful or admirable, what are the elements in it which have contributed to that result.

At first, it may be, such an effort seems to go unrewarded; but if the habit be persisted in, intelligent perception will awaken, little by little the light will grow, and soon it will be quite easy to disentangle from the mass, as it were, those characteristics, those laws, those conditions, which have made the building what it is.

While traversing some particular line, for instance, note its relative proportions to the other parts. Follow out, if you can, the methods of construction, and mark how the effects are produced. Examine the general masses from various points of view and study the composition of your subject, not only in respect of its component parts, but also in relation to its environment. The latter is of great importance, for one of the chief elements of success in a building is its adaptation to its surroundings.

Here it is especially that "scale" comes in, for the scale of a building must be either in keeping with or in contrast to adjoining buildings or objects, just as colours must either match exactly or be complementary to one another. Scale is relative and determines the proportion of one part to another and of the several parts to the whole. It is like the dominant note or key in a musical composition.

You are probably all of you aware that sounds which harmonise and please the ear have fixed relations to one another. For instance, if you strike an object of a metallic or otherwise resonant nature, a trained ear can distinguish three notes in conjunction, viz. the fundamental or keynote, and the third and the fifth in the division of the octave. These "harmonics," as they are called, will be most clearly recognised in listening to the sound of a large bell. Colour also has its divisions and harmonies, and you will not get far in architecture without discovering that here also similar laws hold good, and that there is such a principle as a true proportion of parts in the scale of building.

It is only by a diligent study of and a careful regard for these laws that we can effect an harmonious composition, which all the same can never be merely mechanical in architecture, any more than it can in music. There is as wide a range of possible combinations and developments in the one case as in the other. The great architects of every age and every country have exhibited as wonderful a variety of progressions and characteristics as can be found in the works of Mozart, Beethoven, Mendelssohn, or Wagner.

You should also have regard to the aspect of the building you are studying—whether it is situated in the narrow street, the broad thoroughfare, or in open ground. Note how the projections and lights and shadows are determined on each frontage. Where the sun penetrates reflected light may be taken advantage of. Projections and shadows on a south front are by no means the same as they would be with a north aspect. How well Vanbrugh, amongst others, understood this! I mention Vanbrugh because his insistence on this point is so obvious.

It is only thus by analysing and searching out the guiding principles which have actuated men in the past that we shall really profit by a study of their work. If we can discover the sequence of thought which has guided them in the achievement of fine results, we in our turn may, by taking thought, successfully work out the problems which come before us.

Depend upon it, that which we admire in their work is not the result of careless, accidental, or haphazard arrangement of materials. No, there is thought behind it all—sometimes naïf and immature, and sometimes even "smelling of the oil"; but there it is, and the best results are just those upon which the best thought has been expended. If genius is not, as it has been defined, "an infinite capacity for taking pains," at any rate in architecture, it is very nearly akin to an infinite capacity for taking thought.

The best thought, however, does not advertise itself, and the best work is not necessarily that which first arrests our attention. How often has it been our experience in the past, when going to a place a second or a third time, to come across some excellent building which altogether escaped our notice on a previous visit. Rely upon it, such a building will repay careful examination.

Do not be misled by the apparent simplicity of much of the best work, for this very simplicity, if not the outcome of profound thought, is the triumph of a practised genius. "Through the complex to the simple" is almost a law of mental evolution.

Do not therefore fall into the error of a certain member of a building committee who remarked to the assessor in a competition, "I cannot understand why you have put So-and-So's design first. It is so simple—anybody could make a plan like that." When it was pointed out to him how difficult the other competitors had found their task, and how complex and incoherent some of their designs were, it began to dawn upon him that perhaps there was more in Mr. So-and-So's design than met the eye of a casual member of a building committee.

When you are making a study of a building it is upon the work as a whole that you should concentrate your critical acumen. Do not allow your attention to be diverted by attractive or suggestive bits, and do not wander off into the by-paths of archæology.

When you study mouldings, for instance, or similar features of a building, do not regard it as an opportunity for speculating what date, style, or period it belongs to, but regard it from the point of view of its true purpose and meaning. In the case of the mouldings, consider not merely their beauty of form, but their effectiveness in affording shadow and protection.

Archæology has its place, but it should be kept there. It often usurps the interest and attention which ought to be given to the example as architecture. The glamour of historical romance has served to invest many a building with a purely factitious value. The accidental effects of age and decay appealing to the sentiment of the man pervert the judgment of the artist, to his own detriment and that of his art.

This same sentimental halo, hanging around all that is ancient, is responsible for the many imitations, forgeries, and affectations which have so long dogged the footsteps and hindered the progress of genuine architecture, and which in some cases have proceeded to such an extreme of absurdity as to tempt men to forswear the past altogether and to rely upon their own creative faculty to invent something altogether new.

This is the other extreme of folly—for folly it is to think that our inherited traditions can be safely ignored, or that buildings which have stood the test of time and criticism have nothing to teach us.

They are, on the contrary, as mines of wealth in which, digging deep, we shall unearth many a hidden treasure.

They put before us problems—and their successful solution. They portray many various methods and effective combinations, suitable forms adapted to different materials, varied textures serving a definite purpose, and other elements of beauty and strength which, if not always entirely realised, are yet present as an ideal which we may all study with advantage and strive to express in our own work.

So I say to you, my youthful fellow-students, Steer an even keel, if you can, between the Scylla of a superstitious and sentimental regard for the past and the Charybdis of a contemptuous indifference to all its works.

If an example is merely old, leave it alone ; if it is artistically good, approach it with all reverence, and examining its structure within and without, endeavour to discover the secret of its charm, even as a bee extracts the honey from the flower.

Do not make the mistake of supposing that you will necessarily be able to define the exact nature of the secret.

There are principles of architecture as absolutely reliable and yet as vague and ill-defined, as much " in the air," if you will allow the expression, as the laws which govern musical progressions or the methods which underlie true literary form. In no one of these cases can the subtle secrets of the art be distilled in the form of express and mechanical rules. If we desire that our own powers may be moulded and guided on true lines, we must, as it were, live in the storehouses, continually absorbing the spirit of the masters as embodied and expressed in their works. Centuries of experiment and criticism, generation after generation of trained perceptions and cultured intelligence, have gone to determine what is good, what is beautiful, what is true. Shall we throw away the results of all this ? Rather let us recognise and admit that our knowledge should be based upon the experience of those who have gone before, and our taste trained and refined in the study of the cultured monuments of the past.

As Professor Clausen has said in reference to paintings, " The work of our own times may lose its freshness and interest in a few years, while the older works still hold us with an increasing charm."

There are many ancient buildings in our own and every land which hold us with an ever-increasing charm, a charm attributable to their simplicity and self-restraint, their sincerity and directness of purpose, the straightforward and appropriate way in which they declare their object and intention.

Every such building will be found to possess a vitality of its own which, so far from ignoring traditional methods, has taken them up and carried them on a stage further. So now the proportions and values which have determined good effects in the past must hold good to-day. The needs of the time, it is true, call for special and characteristic expression ; we may have to readjust, to combine afresh ; but every new departure, if it is to be true and lasting, must take the old as its starting-point, the past as its basis, that which has been already accomplished as its foundation.

In all good work we shall discover a perfect blending of science and art, so combined that it is impossible to say where the one ends and the other begins. Where these are divorced there can be no true architecture. A steel-constructed building, for instance, cased with terra-cotta—or any other material for the matter of that—is not architecture at all.

In studying a building this is the first test to be applied ; this is the standard to which we must first submit it for judgment. Do not begin by sketching or noting merely surface decorations or artistic embellishments ; rather take the details of construction as your starting-point.

Note the size and bedding of the stones and the position of the joints—elements of beauty which are too often overlooked.

Examine the methods of support and resistance, not thinking only what is necessary, but also how it satisfies the eye.

Discover the scientific and mathematical problems which have been successfully worked out. Yet do not even in thought separate the science and the art of the building—the two are conjoined, and must be studied together and simultaneously.

The building must be solid and strong as well as graceful and pleasing. Stability is demanded no less than beauty.

In fact, good construction, including the right use of materials, is a prime essential, and the foundation of all excellence in architecture.

Nowhere, I think, is this more forcibly demonstrated than in the career and work of Sir Christopher Wren, who, both by education and the bent of his youthful genius, seems rather to have been of the scientific and mathematical than of the artistic order of mind. Though, like all educated men of his day, he took an intelligent and cultured interest in architecture, he received no special training for such work.

Wren took his degree at Oxford at the age of eighteen, became a Fellow of All Souls at twenty-five, and three years later was made a D.C.L. of Oxford and an LL.D. of Cambridge. Obviously it was not upon the ladder of architecture that he rose to these distinctions. As a matter of fact he was professor of astronomy at Gresham College, and in mathematics and astronomy he acquired for himself a European reputation. He was also President of the Royal Society in 1680.

I have adduced these facts to show that though he undoubtedly possessed a very wide range of general knowledge, and was endowed with natural gifts of a wonderfully high order, all these were in the early part of his career directed to the practical side of life rather than to the artistic. His art was dormant; it was there, however, and he sometimes gave the rein to it a bit, for he is said to have invented mezzotint, or at least some improved method.

It is interesting to speculate what it was that finally drew all his wonderful gifts and powers into the service of architecture. Whether the determining impulse came from within or without—probably a bit of each—I cannot doubt that it was the scientific or constructive side of architecture that attracted him in the first instance, and that led him to accept an appointment as Assistant Surveyor-General of His Majesty's Works.

In our own experience we find cases where we are much more impressed by the constructive beauty of a building than by any other feature in it. So there is an order of mind to which power and fitness of purpose appeal with unusual force, just as, again, a mathematical mind finds a fascination in the treatment of solids and voids, and of superincumbent masses.

The first important work entrusted to Wren in his new office will serve to indicate, not only the natural bent of his mind, but also the official appreciation of it on the part of the authorities. He was set to examine and report upon St. Paul's Cathedral, which it was feared was in a dangerous condition. It is evident from the report that he did his work thoroughly—the very first thing he did was to measure the whole building carefully—and the insight and experience that he thus gained in constructive work stood him in good stead afterwards.

With respect to the roof he says: "It is evident by the ruin of the roof that the work was both ill-designed and ill-built from the beginning—ill-designed because the architect gave not abutment enough to counterpoise and resist the weight of the roof from spreading the walls. . . . This also may be safely affirmed not only by an architect taking his measure from the precepts and examples of the ancients [you see he advocated this], but by a geometrician (this part being liable to demonstration), that the roof is and ever was too heavy for its abutment; for the eye alone will discover to any man that those pillars, as wide as they are, even 11 feet diameter, are bent outward at least 6 inches from their first position. . . . The bending of the pillars was facilitated by their ill-building, for they are only cased without, and that with small stones . . . but within nothing but a case of small rubbish stones and much mortar which easily crushes and yields to the weight."

Good old times those! Jerry-building is obviously not a very modern institution!

Then, too, Wren's first problem in building was a constructive one, for in the wonderful roof of the Sheldonian Theatre at Oxford, which has a span of 68 feet, the scientific construction is masterly, and brought him great reputation.

Two years later, viz. in 1665, occurred the Great Plague, and Wren took the opportunity to pay a visit to France to study architecture as a fine art. In Paris he studied all the principal buildings, and became intimate with the most celebrated artists there.

He was introduced to Bernini, who showed him his designs for the Louvre, for which he says in his Notes he would have given his skin. The old Italian would not let him study it long, and he says he only had time to "copy them in his fancy and memory, and shall be able by discourse and a crayon to give a tolerable account of it."

He also studied Fontainebleau, St. Germains, and Versailles. Of the last named he says: "The mixtures of brick and stone, blue tile, and gold make it like a rich livery—not an inch within but is crowded with ornament." Wren's own work was subsequently distinguished by its colour effects and contrasts of texture.

He adds, in the letter from which I have already quoted: "The women as they make here the language and the fashions, and meddle with politics and philosophy, so they sway also in architecture. Works of 'filgrand' and little trinkets are in great vogue; but building ought certainly to have the attributes of eternal, and is therefore the only thing incapable of new fashions."

These words coming from the man who advanced the architecture of the Renaissance to such a pitch of excellence and succeeded in establishing an English tradition fine in type and grand in scale—the importance of these words, I say, as a guiding principle for the student cannot be over-estimated.

I hope I may be pardoned for quoting so freely from Wren, and for enforcing my points by the history of his career; but his methods of study and the line of his development are so clearly before us that I am sure we may draw many useful lessons and suggestive hints from them.

In conclusion I will briefly recapitulate some of these points. That which I have especially endeavoured to impress upon my brother students this evening is, that in addition to the ordinary architectural curriculum there must be a systematic and continuous study of buildings that are worthy, both ancient and modern. We must live in an atmosphere of art, breathe it in at the very pores of our skin, as the phrase goes, that it may act upon our own mental soil and render it productive.

This fertilisation will be immensely stimulated if, to continue the figure, we plough up the ground with hard thought. "Hard thought," this is one of the great secrets of good architecture—hard thought not only in the problems submitted to us for solution, but in our study of examples. Without such thought we shall sink into mere copyists or adapters of a few stock-in-trade types, having no affinity to the thought of the time or the purpose of the building; in other words, our art will cease to live and grow.

I have also urged upon you the importance of laying a good foundation in a practical knowledge of the art of construction and the right use of materials.

This is the only solid, reliable basis for our art. Without such knowledge the keenest appreciation of the beautiful may be only thrown away; at the very best it is for ever fretting against the limitations and restrictions with which it finds itself encompassed. But if the practical, scientific foundation is well and truly laid, how great, how delightful, the field that opens up before the artist! His very fetters become his servants; the goad of the taskmaster becomes in his hand a tool for the accomplishment of all, and more than all, that his eye had conceived or his fancy dreamed of.

Let our ultimate ideal be the realisation of those moral principles which are the dignity and power of architecture as they are of life—viz. simplicity and self-restraint, sincerity and directness of purpose. Without these we cannot but fail; with these we may accomplish something worthy of our art, and leave behind us work that shall be honourably characteristic of our time.

CRITICISM OF THE WORKS SUBMITTED FOR THE PRIZES AND STUDENTSHIPS 1904–1905.

By A. N. Prentice [*F.*], *Soane Medallist* 1888.

Read before the Royal Institute of British Architects, Monday, 6th February.

THIS year the duty has fallen to me to review the designs and drawings submitted for the prizes and studentships offered by the Institute. I approach the subject deeply sensible of the honour of being invited to perform this responsible task, and I trust that the students will accept in good part the criticism of one who in former years entered the lists and wrestled like themselves for the various prizes, and who is not forgetful of the patient hours of labour and of the sacrifices necessary to produce a drawing or design such as it is now my privilege to review.

In common with many of our members, I have always looked forward with the greatest of pleasure to viewing these annual exhibitions, and the Institute is to be congratulated on the successful manner in which the drawings are displayed in the Alpine Club. The room is well lit, and every drawing can be seen to advantage—so different from the old days when the drawings were huddled together in a back room in Conduit Street.

Generally speaking, the standard of excellence is well maintained, and I am glad to note that the prizes are competed for in increasing numbers; although it is somewhat surprising, considering the large number of architectural students in this country, that such a very small proportion come forward. Take the Owen Jones Prize, for instance: only three gentlemen have responded. I hardly think students appreciate the vast amount of good these studentships do for them; to many it has been one of the stepping-stones of their lives.

In my criticism I propose to deal first with the drawings and studies of old work; and, secondly, with the designs—the ultimate end and aim of all these studies. I have always considered that a facility to draw well is the first makings of a great architect. Did not Michael Angelo impress on his pupils the importance of continually drawing? I know good drawing is not deemed of any great importance amongst some architects, but a visit to the Gallery of the Alpine Club is sufficient testimony that our students think otherwise.

THE PUGIN STUDENTSHIP.

On looking at the Pugin drawings I am glad to see that this time-honoured prize is again keenly competed for. The medal is awarded to Mr. E. Garratt for a remarkable set of measured drawings, all executed in pencil to a large scale. The subjects are particularly well chosen, an important factor in influencing the award. Such examples as the Beauchamp Chantry, Tewkesbury Abbey; the old Town Hall, Cirencester; the Wakeham Tomb, Tewkesbury; and the South Porch of Gloucester Cathedral afford ample scope for the draughtsman's skill.

The drawings, however, suggest a slight want of sympathy for the ancient works they are intended to represent. One might almost imagine that they were renderings of recent buildings, or otherwise the subjects must be exceedingly well preserved. Such subjects should be treated lovingly, with some indications of the hand of Time. Mr. Garratt's display of full sizes is meagre. He also gives very few sketches; but his drawing of St. Chad's pulpit is an admirable piece of freehand work.

Mr. H. A. Dalrymple receives an Hon. Mention for his five strainers: his best and most effective exhibit represents the details and mouldings on the west doorway, Ely Cathedral, drawn to large scale, curiously mixed with carvings of the Grinling Gibbons order from Cambridge Colleges, and a spirited wash drawing of carving from the Percy Shrine.

On the other hand, his measured work is rather scrappy: a more effective subject than the Bishop Longland's Chantry might have been found.

Mr. Barker's set is in many ways the most interesting submitted for this competition, and more of the type that has carried off the prize in former years. Mr. Barker has a high artistic sense, and his sketches in pencil, wash, and colour are delightfully rendered. The drawing of Gloucester Tower recalls some of the late G. E. Street's handiwork. The pen-and-ink drawings of Pershore Abbey and the interior of the Lady Chapel, Gloucester, might have been omitted: the vaulting in the latter appears out of drawing—a fault which might alone affect his chance. His measured work is confined to a plan, section, and elevation of the north porch, Wells Cathedral, all splendidly drawn; but I would not commend the practice of displaying full-size drawings over a small-scale elevation.

Mr. Walter H. Godfrey has three sheets of measured drawings, showing a screen from St. Alban's Abbey Church, bronze gates to Henry VII.'s Chapel, a tomb, and a number of sketch-book studies of picturesque bits. The best and most effective are two views of Haddon Hall, one of the courtyard, and the other an unusual view from underneath the terrace.

Mr. Leslie Wilkinson might perhaps have chosen a better subject for measuring than the rather squat vestibule of a chapter-house. He also contributes some very interesting drawings from Stamford, notably the decoration from the roof of St. John's Church. His best sketch shows the spire of St. Mary's, Stamford.

Mr. Frank Dyer is to be commended for his splendid drawing of the arcading in the Lady Chapel, Ely Cathedral, executed on the spot in pencil to a scale of 3 inches to the foot. He also exhibits a large number of pencil and pen-and-ink sketches marred by hatching—for instance, the front of St. Mary's, Beverley.

SILVER MEDAL AND TEN GUINEAS.

It is extremely gratifying that the Silver Medal with its modest award should be so keenly sought after by our students; as many as seventeen sets have been submitted. What an enormous amount of labour these drawings represent!

We have almost complete records of Haddon Hall, Greenwich Hospital, and Somerset House. It would be hard to find anything finer in this country than those three buildings.

After a careful examination of the drawings and portfolios there can be little doubt that the Committee have given a just award. I should like to impress on the students that while I am glad to see so many recognise the importance of measuring old work, the artistic rendering of an important subject will by no means assure them the prize. I would also impress on students the essential importance of a methodical method of measuring up the buildings they have selected. Year after year the Committee (who give very careful consideration to the original surveys) are horrified, I am told, to see the scrappy, haphazard, and unconvincing methods adopted by many of the competitors; and in awarding the prize the Committee are largely guided by the surveys which indicate the most careful and thorough investigation and study of the buildings.

The Council have awarded the Silver Medal and ten guineas to Mr. Edward G. Wylie, of Glasgow, for his drawings of Haddon Hall, Derbyshire, excellently rendered and worthy of the subject. The plan is carefully figured, and diagonal dimensions recorded. It would have been interesting if the author had given us the first-floor plan as well. The sheet of brass fire-dogs and hinges makes a very effective drawing, and other sheets of full sizes represent internal screens and panelling; but details of the external stonework would have been more valuable to compare with the $\frac{1}{8}$-inch scale drawings.

An Hon. Mention is awarded to Mr. W. Harold Hillyer for a huge diagram of the Embankment front of Somerset House, boldly drawn, in a rather hard manner. Some distinction should have been shown between the terrace elevation and that of the main façade. The plan shows no internal figure dimensions. "Ell" can draw full-size details in a strong and effective manner, but there is no attempt to analyse the construction of the wood cornices and the method of finishing the lead gutters. The elevations are well drawn, but marred by the heavy colouring.

Not so well drawn, perhaps, is the set "1903" of Greenwich Hospital, showing elevations of the river front, quadrangle, details of doors to $\frac{1}{4}$-inch scale, a sheet of tiny block plans, and a few scattered full sizes of unimportant details. Why not have given a large section of the main cornice, frieze, and architrave? The construction of a cornice 3 ft. $2\frac{1}{2}$ in. deep is worth analysing.

Mr. Jackson's set of the Pazzi Chapel, Florence, is also awarded an Hon. Mention, and is charmingly rendered in brown ink, contrasting well with the sectional parts, which are tinted in a grey body colour. The splendid large drawing of the capitals in brush outline is quite a new departure, but the same capitals drawn to a small scale are rather weak.

"Culdee" shows a fine set of drawings of Dunblane Cathedral, and "Clyde" gives us another ecclesiastical building from Scotland: his sheet of full sizes would puzzle any builder's foreman. Time will not allow to mention all the sets.

THE OWEN JONES STUDENTSHIP.

Three men compete this year for the Owen Jones Studentship, founded for the study of ornament and coloured decoration. Mr. H. Morley, who receives the award, has profited by Mr. Gibson's advice to students last year. He has evidently been back to Italy, and has concentrated his energies on a charming rendering of the vestibule ceilings of the Palazzo Imperiale, Genoa, dating about the year 1560. His figure work displays great delicacy of drawing combined with a charming sense of colour—a rare gift. Without doubt Italy is the fountain-head of colour decoration: most of the few good examples in this country have been done by Italians. In the seventeenth century Verrio painted ceilings and frescoes in a number of our country houses, but we have little to compare with the finest work in Italy. Had Henry VIII. been able to induce the Pope to permit Raphael to come to England, things might have been otherwise, and the influence of Holbein on our subsequent architecture and decoration would not have been so noticeable.

Mr. Beattie Brown and Mr. McLachlan have also been far afield, and both show studies from Spain and Italy. The latter has practically sent in the same set as last year, but his rendering of the colour of the mosaics in the Capella Palatina, Palermo, is rather thin and not convincing. On the other hand, nothing could be more beautiful than the exquisite study of the Mihrab of the Mosque at Cordova, with its glass mosaics and inlay of precious stones.

Mr. Beattie Brown is not so happy in his example of a Spanish reja or screen; better examples are to be found in the Peninsula. This competitor is very ambitious, and has made a bold attempt to depict the elaborate façade of Santa Maria Novella, Florence. Mr. Brown will no doubt do better another year. Emerald-green seems to be a favourite colour with students at present; and why use ultramarine to represent the blue in Italian mosaics? A mixture of Prussian blue and light red would, I think, be found to give better results.

Mr. McLachlan's design for a Lady Chapel suggests painted decoration rather more than mosaic: his blue is much too thin, but his decorative arrangement of figure-work is excellent.

THE ARTHUR CATES PRIZE.

Two competitors have come forward for this prize, and Mr. Winton Newman is an easy first. The measured set of the south-east angle of the Cloisters, Westminster Abbey, deserves the highest praise. Indeed, as a draughtsman and designer, Mr. Newman ranks with the best men in the room. His design for a picture gallery is well conceived, and the projecting arched window is an original idea.

Mr. Vincent Hooper also shows some capable measured work, and his tinted perspectives are quite as good as Mr. Newman's. He also submits a quaint design for a seaside residence, but I think his clients would benefit by the introduction of a hollow wall, and an extra door to the dining-room for service purposes. A house of this class should have a morning-room wider than ten feet.

SOANE MEDALLION.

Having finished with the drawings we will now turn to the second part of our subject, viz. the designs. What can be more delightful than to be untrammelled by cost in working out one's ideas on paper? The pleasure of indulging in one's extravagances and fancies must be very pleasing. Do not restrain yourselves if you want to win the prize; put in all you know. An unsuccessful competitor sending in for the first time for the Soane Medallion will probably be impressed at the display of the prizewinner, but it will be an incentive to him to higher ideals next time. Therefore design in the grand manner, but, as a word of warning and as a matter of the greatest importance, try to make your building represent what it is intended for. A Roman bath can never be mistaken for an hotel lounge, nor a warehouse for a royal palace. Symmetry of design should be aimed at, to get a dignified effect; avoid equal divisions of floors and stringcourses; and, finally, start with the plan before beginning your elevations. The designs this year for the Soane Medallion are of an exceptionally high order. A design for a royal palace is a very good subject.

Mr. S. Herbert Maw is placed first, with a well-studied plan laid out in a sumptuous manner. One can hardly conceive the details of a plan being carried to a higher perfection, and the author has obviously made a special study of the requirements of a royal palace. He has a big grasp of his subject, and the twin staircases are laid out in a large style, with central groups of sculpture. The geometrical elevations are more pleasing than the perspective view, and the corner pavilions terminate abruptly in heavy square masonry, suggestive of a want of funds. Altogether this admirably drawn set deserves the prize.

Mr. Pickering, who receives an Hon. Mention, is not so happy in his plan, with a rather cramped inner court. His elevation is better than the prizewinner's, in that it is more dignified and in better proportion, the two upper stories being treated as one.

Why does "Concrete" not turn his principal façade to the river? His plan is left to the imagination of the spectator; the rooms are not named, after the manner of the Ecole des Beaux-Arts.

"Nil Desperandum" should study more the use of the brush in tinting his elevations.

"Roy" has evidently put off starting the competition till too late: his scheme is unfinished, but his design has a certain grandeur of treatment. The finish of the first floor window heads is ugly.

"Vive le Roi" is wanting in the qualities of style and distinction.

"Omar's" design has certainly the air of a royal palace, picturesquely grouped, though symmetrical. He shows a central court of ornament, flanked by two courts of utility; the perspective is wildly drawn and the sculpture work highly grotesque. The ½-inch drawing shows a mixture of Greek and Roman detail of his own invention.

Mr. Gordon's elevations are the best submitted. His east elevation section and west elevation have a certain quality of style and elegance that is very pleasing. Mr. Gordon should have a great future before him. The indication of a plain terrace as a contrast to the façade shows he has studied architectural effect, but his staircases are rather pushed away in a corner.

"Q.E.D." and "H.M. in Circle" have also good elevations and plans.

TITE PRIZE.

Mr. Robert Atkinson, who receives the award, gives us an architectural fancy of great merit inspired from a study of ancient Thermæ, Roman sculpture, Michael Angelo decorations, and marble pillars of emerald-green. Nature cannot produce columns like these. The whole is, however, a splendid example of modern draughtsmanship.

Mr. Horsnell receives a Certificate of Honour and £5; the happy effect of the red-tinted columns arrests attention, otherwise his set might be easily passed over.

Mr. C. L. Wright has gained an Honourable Mention for his academic treatment and sensible plan, in which the staircase is made subservient to the whole.

His elevations suggest a study of the Waiting Hall at Euston Station, one of the finest proportioned rooms in London.

"Dombey," before starting the competition, has evidently made a tour of some of the recent London productions furnished by some well-known furnishing firms.

"Atrium's" perspective is of the shaky order: he has a charming suggestion for a fountain in the centre of his Lounge.

"Bathon" has taken much trouble and infinite pains over his sections and plans, charmingly shown in a delicate pencil perspective. The plan does not read distinctly enough, owing to the black tinting of the floor pattern.

The author of the device "Anchor" should study sciography for the proper rendering of interior sections in colour.

"Oracle" is a frank attempt at a modern rendering of the subject: his Lounge is top-lit by a series of circles and oblongs. The design is boldly treated, but the colour effect is too heavy, and the inky tone of the sections tends to spoil the decorations.

"Roma's" design suggests a grand corridor to a large modern hotel, but the plan is like a Roman basilica.

THE GRISSELL GOLD MEDAL.

Mr. James A. M. Hunter gains the Grissell Gold Medal with a design somewhat wanting in elegance and lightness. The angle pavilions shown in the perspective would look equally well in rough-cast; at least they suggest more that treatment than the boiler-plate construction indicated on the scale drawings. Mr. Hunter, however, deserves the award: his details are carefully worked out. It must be extremely difficult when approaching a subject of this sort to banish stone architectural forms from the mind. The beauty of iron construction lies in the lightness of its treatment; some successful attempts have been attained in this way in Paris, notably, the hall of the Grand Palais, erected for the picture exhibition in 1900. The design under motto "Irony of Fate" suggests the ironclad type of winter garden, and looks as if it were designed with a view to withstand a siege.

ESSAY.

I will conclude with a short reference to the Essay. In many ways this should be a memorable year in the history of this award, but principally because the prize has been carried off by Miss Ethel Charles, one of the two lady Associates of the R.I.B.A. The subject set was the "Development of Architectural Art from Structural Requirements and Nature of Materials," a most comprehensive title.

As many as fourteen competitors responded to the occasion. Last year only eight competed, when no work was considered of sufficient merit to obtain the award. I have not had time to read the essays, but they must have been of unusual excellence this year, as eight competitors have received honourable mentions and awards.

I have now finished my review, and hope that those students whose drawings I have omitted to criticise will not imagine that their works have been passed over or their efforts depreciated. It is my desire to give a word of encouragement to all. May the spirit of enthusiasm not depart from our young men, but may they press on to further achievements! Rome was not built in a day; success will follow disappointment; and seldom an architect comes to fame without experiencing somewhat of the bitter cup of misfortune.

VOTE OF THANKS.

Professor BERESFORD PITE [*F.*], in asking the Meeting to accord a hearty vote of thanks to Mr. Belcher for his Address, and to Mr. Prentice for his Criticism, said:—"I can scarcely trust myself to speak of Mr. Belcher's Address. I am in the fortunate position of finding in it nothing personally new to myself, but everything that I believe to be absolutely true, and I can most cordially recommend a careful study of it to the students. One knows how easily these addresses, which are somewhat general in their character, are forgotten, but I would urge you not to forget the address Mr. Belcher has given you to-night. Take the opportunity, if not of storing it in your mind at the outset, to refer to it. There are few things more perplexing to a student than the difficulty of trying to appreciate what to do, what to see, what to sketch, when he suddenly finds himself in such a place as Florence for the first time, or in Rome, or further afield, as students are going nowadays. The wise, earnest, and carefully thought-out address you have heard to-night will, under such circumstances, be a very valuable guide to you. Our thanks are also due to Mr. Prentice for so carefully going through the drawings, and giving us these interesting notes. I always cherish a certain conviction that there are qualities in the unrewarded designs which far excel the qualities which have appealed to the adjudicators upon the Students' Competitions. On that point, gentlemen, from a long experience, I can speak with some conviction. Let me, therefore, beg those of you who are not among the honoured this evening to comfort yourselves with that divine hope that the assessors have been blind to some of those especial qualities which are strong in your work. Whatever happens, do not be discouraged; there is absolutely nothing to be discouraged about in having made a great effort, and in having attained the opportunity of sharing in such an exhibition as we have had this year. Such labour is not thrown away. I have another private conviction, and that is that the best students' designs are made out of office hours and smell of the midnight oil. They have taken the place of the tennis court, the cricket field, and the football field for the time being. I do not think that any student attains to satisfactory success in his studies unless the whole of the man—body, soul, and mind—is put into the work. Again, never grumble if you are not allowed in office hours, or if you do not have the opportunity in some day school, to compete for the Institute prizes. Make up your minds as soon as the programme is out that you will start on your designs for next year's work, with the certain hope that you will gain a good deal in the meantime, and be satisfied at the end. May I take the opportunity of making a couple of suggestions with regard to a possible improvement in the Pugin Studentship conditions? It has often struck me that the time has come for the reconsideration of the conditions of the Pugin Studentship. We see every year a vast amount of labour and care expended in the production of sketches, and there the matter ends. The successful student is congratulated for his drawing and his successful tickling of the assessors' fancies; he adds on another two months' reckless sketching, and comes back. The Institute is none the richer; the student is the happier, but not the richer; and again and again the process is repeated. If the Institute would predicate every year the course to be followed by the successful student, would specify some Early English or Mediæval art, would define its character—ecclesiastical, mediæval, or castellated, or the general architecture of a whole district or of some material—and would embody that student's work in the report which it retains and publishes, we should in course of time be able to make collections, by the aid of this delightful endowment which perpetuates the work of a great modern and mediæval architect, of much useful material for the Institute, which at present is wasted. And how much more may I claim that the reconsideration of the conditions of the Institute medal for measured drawings would have the best results? Here every year are brought up numbers of valuable measured drawings, only to disappear again. The Institute does not claim them. The library does not want them—our limited premises have something to do with that; but if some department of the Council were able to lay hand on these records, and merely to file them as records, we should succeed in obtaining for the Institute a valuable and accurate record of whole series of buildings. I cannot help looking forward to the day when such a simple reform will be effected which will give additional value, interest, and credit to this annual exhibition of the prize-takers. May I just say, Sir, in conclusion, that your own remarks on the subject of modern design are exceedingly valuable? May I venture to urge that the design prizes of the Institute perhaps suffer a little in quality from leading students into paths in which they cannot by any possibility walk in the course of their ordinary education, as is hinted in Mr. Prentice's criticism by the mixing up of a basilica with an hotel lounge, and of Roman baths with royal palaces, indicating that the student is at sea in his subject?

This setting of vast subjects is a mistake. If we had a royal palace, say, every half-century, and an hotel lounge more frequently, we should come to the practical side of architecture. Might I suggest that it would be to the benefit of architectural art if we were to take plainer subjects? Why not take a brick subject? Why not ask for a reasonable, economical building—which must be beautiful if anything is beautiful? Why not a workhouse—a building which the charity of the nation provides for the poor? Why on such a building should not all the refinement, and restraint, and economy of our Art and our education concentrate itself? This is a miserable suggestion, but if so, well, then, design your own house, if you want to find a mean between a royal palace and a workhouse! In any case, let us hope that we may become frank in our acceptance of modern facts. I do not think there is anything more important than that students should be brought to face facts and not fancies. I should like, Sir, to suggest that archæology is the proper field for the architectural student; not this sham antiquarianism, which blossoms out in the building of Gothic ruins in parks and in buying sham old furniture and decorating modern houses with it, which is highly to be deprecated. But that intelligent archæology which looks at an ancient building and sees a stone joint and learns that that joint is there because the stone was cut—and why it was cut, and who cut it. If you get your mind to go back to facts which have now become architecturally historical, your archæology will become interesting and valuable; and it is such modern archæology that we want in our designs. We want you to take the modern facts; we want you to take the present work; we want you to take actual requirements and apply them to the subject in hand; and under those circumstances there may perhaps still rise among us—late, it is true, but one hopes for it still—an enthusiasm for that which is present, for that which is actual, for that which is modern, and towards which architects of all others ought to strive. Let me ask you very cordially to support with your acclamation this vote of thanks to the President and to Mr. Prentice.

Professor W. R. LETHABY: I am much honoured by the request to second this vote of thanks, which I do with the greatest pleasure. In doing so, I cannot but recall to my memory the fact that it must have been some twenty-five years ago when I marched up to receive a prize such as those which are to be given to-night. I must congratulate the Institute on having obtained this year so very interesting and valuable a series of drawings as they have done, and I congratulate the students who have done them. Looking round the walls, we cannot but be struck with the enormous amount of earnest and careful labour that has been spent on these drawings. And, further, I would like to express my own personal pleasure in the fact, or accident, that a somewhat unusual type of building has been taken for study in these Turkish mosques of the sixteenth century—they are amongst the latest flowers of Eastern thought. If you look into them you will see that they are perfectly direct engineering, and undoubtedly most marvellous examples of simple equilibrium. They are extremely real and vital, and knit up in their strength. And not only have the subjects in themselves great merits, but the choice of these outside subjects tends to break up that misleading notion that so many of us had in our youth, that architecture was in some curious way sharply divisible into the Classic and Gothic schools. The more we study these forms, these other expressions of art—not merely, as I say, for themselves, but to gather out of them what they can give—the more do they show us that from the earliest days to the latest there were not strict divisions of style, but that all building art was one progress of change from the beginning to the end.

The PRESIDENT, in responding, thanked Professor Pite and Professor Lethaby for their remarks and for the valuable hints they had given to the students. He hoped some of the suggestions made by Professor Pite with regard to the subjects set for future competitions would be carried out. He felt that some apology was due to their visitors for his own somewhat technical remarks; and probably to members also, who must regard them as mere truisms. He felt, however, that this matter of the study of ancient buildings should be properly considered from their own particular point of view. He certainly was in favour of treating archæology as part of their study; but archæology should not mislead them: they should endeavour to make use of the buildings in order to ascertain, as Professor Pite had pointed out, and reason as to the why and wherefore of the problems these buildings presented to them.

Mr. A. N. PRENTICE also briefly responded.

9, Conduit Street, London, W., 11*th Feb.* 1905.

CHRONICLE.

The Prizes and Studentships 1905.

The Annual Exhibition of the works submitted in competition for the Prizes and Studentships in the gift of the Institute opened at the Gallery of the Alpine Club on Tuesday the 24th ult., and closed on Saturday the 4th inst. Nearly 1,100 persons visited the Exhibition. The number of competitors, including those who entered for the Essay Prize, was eighty, as against seventy-three last year; number of strainers 302, as against 321 last year. The work resulting from the tours of the Travelling Students—Mr. Edwin F. Reynolds (Soane Medallist 1903), who studied in Egypt, Greece, Italy, and Turkey; and Mr. F. C. Mears (Pugin Student 1904), who studied in Somersetshire—was shown in the Meeting-room on the occasion of the Presentation of Prizes on the 6th inst.

Bequest of £1,000 to the Institute.

Intimation has been received from the executors of the late Mr. J. T. Wimperis [*F.*] that under his will Mr. Wimperis has bequeathed to the Institute the sum of £1,000, "to be applicable, at the entire discretion of the governing body for the time being of the said Institute, for the encouragement and promotion of the study and knowledge of architecture or other purposes of the said Institute."

Architectural Education: Past Presidents' Donations.

Following the announcement at last Monday's meeting of the late Mr. Wimperis's handsome legacy above mentioned, Mr. Alex. Graham, F.S.A., Hon. Secretary, made the further gratifying communication that two of the Past Presidents, Sir Aston Webb, R.A., and Mr. J. Macvicar Anderson, had generously placed at the disposal of the Institute, for the purposes of architectural education, their entire holdings in the Architectural Union Company—Mr. Macvicar Anderson's gift amounting to twenty-four shares, and Sir Aston Webb's to nineteen shares. The shares are of £10 each, and are yielding about seven per cent.

The Prize Drawings for Exhibition in the Provinces.

The following selection from the premiated designs and drawings in the Institute Competitions for Prizes and Studentships 1904–5, together with some studies submitted by candidates for the Intermediate Examination, will be exhibited in various cities of the United Kingdom during the next few months, under the auspices of the Allied Societies:—

The Royal Institute Silver Medal (*Measured Drawings*).—Haddon Hall, Derbyshire (3 strainers), by Mr. E. G. Wylie (under motto "Unicus"), awarded the Medal and Ten Guineas; Somerset House (3 strainers), by Mr. W. H. Hillyer (under motto "Thames"); Pazzi Chapel, Santa Croce, Florence (2 strainers), by Mr. A. R. H. Jackson (under device of a Red Disk), awarded Certificates of Hon. Mention respectively.

The Soane Medallion.—Designs for a Royal Palace: 3 strainers by Mr. S. H. Maw (under motto "Crumpets"), awarded the Medallion and £100; 2 strainers by Mr. W. S. A. Gordon (under device of a Lion Rampant), awarded a Certificate of Hon. Mention.

The Owen Jones Studentship.—Drawings by Mr. H. Morley (3 strainers), awarded the Certificate and £100.

The Pugin Studentship.—Drawings by Mr. E. Garratt (3 strainers), awarded the Medal and £40; drawings by Mr. H. A. Dalrymple (2 strainers), awarded Certificate of Hon. Mention and Ten Guineas.

The Grissell Gold Medal.—Design for Winter Garden in Iron and Glass; 3 strainers by Mr. J. A. M. Hunter (under motto "Onward"), awarded the Medal and Ten Guineas.

The Arthur Cates Prize.—Drawings by Mr. F. W. Newman (3 strainers), awarded the Prize of £42; drawings by Mr. Vincent Hooper (1 strainer), awarded Certificate of Hon. Mention.

A selection of Testimonies of Study submitted for the Intermediate Examination.

London Building Acts Amendment.

The following petition against the London Building Acts (Amendment) Bill has been presented to Parliament on behalf of the Institute, praying to be heard by Counsel, &c.:—

To the Honourable the Commons of the United Kingdom of Great Britain and Ireland in Parliament assembled:

The humble Petition of The Royal Institute of British Architects under their Common Seal

Sheweth:

1. A Bill (herein called "the Bill") promoted by the London County Council (hereinafter called "the Council") has been deposited in the Private Bill Office for introduction into your Honourable House intituled "A Bill to amend the Acts relating to Buildings in London to confer various powers on the London County Council and for other purposes."

2. The Preamble of the Bill recites that the provisions contained in the London Building Act 1894 (hereinafter

called "the Act of 1894") as amended by the London Building Act 1894 (Amendment) Act 1898 (hereinafter called "the Act of 1898") and the powers thereunder of the Council are insufficient to secure the construction and maintenance of streets and buildings in the Administrative County of London in a satisfactory manner the provision and maintenance of proper means of escape from fire from such buildings and the reduction of the risk of fire in the case of such buildings and that it is expedient to amend the said provisions in the manner set forth in the Bill and to confer upon the Council further powers.

3. The Bill is divided into the following parts:—

Part I. (Clauses 1 to 7) (Preliminary).
Part II. (Clauses 8 to 18) (Formation and Widening of Streets).
Part III. (Clauses 19 to 33) (Lines of Building Frontage).
Part IV. (Clauses 34 to 43) (Naming and Numbering of Streets).
Part V. (Clauses 44 to 59) (Open Spaces about Buildings and Height of Buildings).
Part VI. (Clauses 60 to 89) (Construction of Buildings).
Part VII. (Clauses 90 to 94) (Special and Temporary Buildings and Wooden Structures).
Part VIII. (Clauses 95 to 109) (Means of Escape in case of Fire and Provisions for reducing Risk of Fire in Buildings).
Part IX. (Clauses 110 to 119) (Rights of Building and Adjoining Owners).
Part X. (Clauses 120 to 124) (Dangerous and Neglected Structures).
Part XI. (Clause 125) Dangerous and Noxious Businesses).
Part XII. (Clause 126) (Dwelling-houses on low-lying land).
Part XIII. (Clauses 127 to 142) (Superintending Architect and District Surveyors).
Part XIV. (Clause 143) (By-laws).
Part XV. (Clauses 144 to 149) (Legal proceedings).
Part XVI. (Clauses 150 to 184) (Miscellaneous).

The First Schedule to the Bill describes the materials which for the purposes of the Act of 1894 the Act of 1898 and of the Bill shall be deemed to be fire-resisting materials the Second Schedule specifies the fees payable to District Surveyors and the Third Schedule specifies the enactments of various Acts which are proposed to be repealed by the Bill.

4. The Royal Institute of British Architects was founded in the year 1834 and by a Charter of Incorporation granted in January 1837 your Petitioners under the name of "The Institute of British Architects" were constituted a body politic and corporate with perpetual succession and a common seal for the purpose of forming an institution for the general advancement of architecture and for promoting and facilitating the acquirement of the knowledge of the various arts and sciences connected therewith. By Royal Warrant dated 1866 Her late Majesty Queen Victoria commanded that your Petitioners' Institute should thenceforth be styled "The Royal Institute of British Architects." A supplemental Charter was granted in 1887 by which certain provisions in the original Charter were repealed and increased powers for the advancement of architecture were conferred upon the Royal Institute.

5. Under the provisions of these Charters your Petitioners' Institute has taken into alliance eighteen architectural societies acting in Birmingham Bristol Cardiff Exeter Leeds Leicester Liverpool Manchester Newcastle Nottingham Sheffield York Aberdeen Dundee Edinburgh Glasgow Dublin and Sydney (New South Wales).

6. For upwards of forty-five years your Petitioners have been the examining body for the office of District Surveyor in London under Section 33 of the Metropolitan Building Act 1855 (hereinafter referred to as "the Act of 1855") every candidate for that office must hold a certificate of competency from your Petitioners which is granted by the Institute on the recommendation of a board of examiners annually elected by the corporate body. That Act was repealed by the Act of 1894 but the provisions of the said Section 33 were re-enacted by Section 140 thereof. Under other Acts of Parliament local and special your Petitioners grant certificates after examination to persons desirous of holding the office of building surveyor.

7. Your Petitioners' Institute as the only chartered body of architects in the United Kingdom accepts and claims as part of its responsibility and public duty the function of tendering advice to the Government and the Council on all legislation by-laws and regulations pertaining to architecture and building generally and under subsection (4) of Section 164 of the Act of 1894 notice has to be given to the Institute of all by-laws proposed by the Council "before applying to the Local Government Board for the allowance of any such by-laws." The advantage to the community of having at its disposal the technical advice and experience of a body of experts is admitted on all hands and it has been the practice of Government Departments as well as of the Council to avail themselves of this advice and experience and the principle is recognised not only in the Act of 1855 already referred to but also in Section 16 of the Metropolis Management and Building Acts Amendment Act 1878. Since then in the past few years your Petitioners were consulted on the London County Council (General Powers) Bill of 1890 on the Public Health (London) Bill of 1891 the Bill for the Act of 1894 and in respect of more recent legislation at the instance of the Council including the by-laws made from time to time under their Acts and the advice tendered by your Petitioners led to many alterations which finally became law.

8. Your Petitioners' Institute had for many years prior to the promotion by the Council of the Bill for the Act of 1894 by one of its committees been considering the subject of consolidating and amending the Building Acts for London and in connection therewith your Petitioners' advice was sought and suggestions invited by the Council on a draft Bill prepared by them consolidating those Acts. Your Petitioners' committee formulated a scheme for the consolidation and amendment of those Acts and this was sent to the Local Government Board and to the Council. When in 1894 the Council promoted their Bill many of its provisions were framed on the scheme of your Petitioners.

9. The Bill for the Act of 1894 was moreover carefully considered by your Petitioners who finding that some of its most important provisions were not framed in harmony with the general principles of architecture and with the accepted laws of building petitioned against it in your Honourable House and during its progress through Parliament obtained various modifications of the proposals contained therein.

10. In 1903 the Council promoted a Bill for the purpose of providing better means of escape from fire and for reducing risk of fire in buildings and your Petitioners at the request of the Council carefully considered and made numerous suggestions on its provisions.

11. That Bill however was not proceeded with and in 1904 at the request of the Council your Petitioners very carefully considered the Act of 1894 with a view to relieving it of many of its ambiguous provisions and rendering it a more complete and workable measure than

at present and a number of amendments and recommendations were in that behalf prepared by them and submitted to the Council. Your Petitioners having devoted much care and consideration in the preparation of these amendments and having framed them in the interest of all parties concerned regret to find that the Council have given effect to but few of them in the Bill.

12. It is impossible in the case of a Bill of this character to specify in detail within the limits of a Petition the many practical and technical objections of your Petitioners thereto and they therefore respectfully submit that it is sufficient herein to indicate the parts of the Bill and the provisions thereof to which they object and their views thereon and to state that they are prepared to place before the Select Committee to whom the Bill if it should be allowed to proceed may be referred the amendments and recommendations prepared by them on the Act of 1894 and the Bill and to support the same.

13. Your Petitioners strongly object not only to the form of the Bill but to the manner of inserting by way of amendments to the existing Act additions deletions changes and new powers and provisions many of which are of such importance and so drastic and far-reaching in their effect as to render it not only expedient but necessary that they should be dealt with as specific and complete enactments. The method of setting out the new proposals in the Bill adopted by the Council makes it difficult to easily appreciate the meaning and probable effect thereof without continual reference to the Act of 1894. This in a measure dealing with the building laws applicable to so extensive and thickly populated an area is most objectionable and prejudicial to the interests affected thereby. Your Petitioners submit that the proper course would have been for the Council to repeal the existing Acts to consolidate and re-enact their provisions with such modifications as may be necessary and in this way to combine in one measure a complete and intelligible building code. Your Petitioners are of opinion (and the opinion is put forward at the instance of the principal architects of the United Kingdom and therefore as the representation of those who are in a position to best express the views of the interests mainly affected by the operation of building laws) that having regard to the many and large interests involved it is essential that the provisions relating thereto should for easy reference and comprehension be so far as possible embodied in one document and the phraseology thereof simplified in order that the meaning may be clear to and readily comprehended by the persons using it who it must be remembered are often inexperienced in legal phraseology.

14. Dealing seriatim with the various parts into which the Bill is divided—

Part II. (Formation and Widening of Streets).—Your Petitioners submit that many of the restrictions contained in the clauses under this heading are not required in the public interest. If the amendments on the Act of 1894 are sanctioned as proposed and the new powers sought by the Council granted they will in their operation tend to hamper and prevent the natural and advantageous improvement of property in and the reasonable architectural development of the metropolis.

15. Part III. (Lines of Building Frontage).—Your Petitioners submit that the power to interfere with private rights sought to be conferred upon the Council by the provisions of this part of the Bill is contrary to the policy and practice of Parliament and the proposal that the Council should by a mere resolution be enabled to enter upon take and use compulsorily private lands is an assumption of the functions of the Legislature which cannot be justified and is most inexpedient the provisions with respect to the compensation to be paid to the persons affected are moreover inequitable and of a confiscatory character.

16. Part V. (Open Spaces about Buildings and Height of Buildings).—Your Petitioners submit that the provisions in the Act of 1894 relating hereto are sufficient for the present requirements. The provisions of that part of the Act of 1894 were the subject of lengthy and detailed discussion in Parliament and were settled at the time after mature consideration. No further extension thereof in the manner proposed by the Bill is necessary and if any alterations or amendments of the existing provisions are desirable those suggested by your Petitioners in their recommendations to the Council before mentioned cover all that is required.

The restriction now proposed by Clause 58 of the Bill that buildings shall not be raised to a greater height than the width between houses on both sides of the street in which the building is to be erected is unfair and will seriously interfere with and retard the reasonable development of property in the older portion of London and will in many cases enormously reduce the value of the property affected and without adequate compensation.

17. Part VI. (Construction of Buildings).—Several of the amendments suggested by your Petitioners in their recommendations have been given effect to in this part of the Bill but the provisions of the clauses thereof as framed include a number of minor alterations for which in the opinion of your Petitioners no necessity can be shown and which if sanctioned will cause great inconvenience in administering the Act and should therefore be struck out.

18. Part VIII. (Means of Escape in case of Fire and Provisions for reducing Risk of Fire in Buildings).—Your Petitioners fully appreciate the importance of securing better means of protection from fire but the provisions contained in this part of the Bill are in their opinion in many respects impracticable for application in the older parts of the metropolis. The proposed provisions require entire revision and amplification with due regard to improvements in the methods and management of the Fire Brigade and the apparatus and appliances thereof.

19. With regard to the provisions contained in Parts IX. to XII. of the Bill your Petitioners beyond including them in their general condemnation of the form thereof have no special observations to offer in respect thereto.

20. Part XIII. (Superintending Architect and District Surveyors).—Clauses 127 and 128 provide in certain events for the appointment by the Council of any surveyor or surveyors for the purpose of exercising the functions of the District Surveyor and authorise the Council to require District Surveyors to perform special services. Clause 141 authorises the Council by resolution to change the name or title of "District Surveyor" and by Clause 142 the Council may at their option undertake proceedings in lieu of District Surveyors. Your Petitioners object to the above additional powers being conferred on the Council and allege that having regard to the care with which the Royal Institute of British Architects select and examine candidates for the office of District Surveyors and to the present status of District Surveyors it is to the public interest that persons holding that office should be competent and professional men of experience and independence able to undertake the responsibilities for which they have been trained and are fitted and that they should be free within limits to exercise a reasonable discretion in the discharge of their duties. The provisions contained in the above-mentioned clauses if sanctioned will be retrograde in their effect and tend to convert District Surveyors into mere building inspectors.

21. Part XIV. (By-laws).—Your Petitioners submit that having regard to the many interests which may be directly

or indirectly affected by the by-laws which the Council are empowered to make provision securing greater publicity for any such proposed by-laws before they are confirmed by the Local Government Board than that required by the Act of 1894 should be made and that Clause 143 of the Bill should be amended accordingly.

22. Part XV. (Legal Proceedings).—Your Petitioners object to the increased powers which are conferred by this part of the Bill on the Council and the Superintending Architect. From their experience of the working of the Act of 1894 your Petitioners are satisfied that it is of much importance that parties to any proceedings should be afforded an opportunity of presenting their case to those with whom the decision rests and submit that it is reasonable and equitable that there should be an appeal to some tribunal and that provision to that effect should have been made in the Bill. Your Petitioners very strongly object to the alteration in the constitution of the existing tribunal of appeal proposed by Clause 145. No sufficient reason can be shown to justify the proposed change. The constitution of that tribunal as provided by the Act of 1894 has given general satisfaction and any interference therewith is quite uncalled for and ought to be refused.

23. On the whole your Petitioners respectfully submit that the Bill is an ill-considered measure badly framed and one which ought to be withdrawn with a view to the introduction in another Session of a Bill consolidating all the laws relating to buildings and prepared by the Council in conference with your Petitioners and the other bodies and interests concerned. The only matter which may conceivably require immediate legislation is that contained in Part VIII. of the Bill (Means of Escape in case of Fire and Provisions for reducing Risk of Fire in Buildings) but should that portion be allowed to proceed material alteration and modification of the provisions thereof are necessary.

24. For the foregoing with other reasons your Petitioners allege that the public interest represented by the Institute and their own rights and interests are injuriously affected by the provisions of the Bill above referred to and that the Preamble of the Bill so far as it relates thereto is incapable of proof.

> Your Petitioners therefore humbly pray your Honourable House that the Bill may not be allowed to pass into a law as it now stands and that they may be heard by themselves their Counsel Agents and Witnesses against the Preamble of the Bill and such of its clauses and provisions as affect the rights and interests of your Petitioners and in support of the introduction into the Bill of such other clauses and provisions as may be considered necessary and that your Petitioners may have such other relief in the premises as to your Honourable House may seem meet.

And your Petitioners will ever pray.

The Common Seal of the Royal Institute of British Architects was hereunto affixed at a meeting of the Council held this 23rd day of January 1905 at 9 Conduit Street Hanover Square London.

Seal.

THOS. E. COLLCUTT,
Vice-President and Chairman of Meeting.
HENRY T. HARE,
Member of Council.
ERNEST GEORGE,
Member of Council.
ALEXANDER GRAHAM,
Hon. Secretary.
W. J. LOCKE,
Secretary.

BUILDING BY-LAWS.

Durham: 27th January 1905.

To the Editor of the JOURNAL R.I.B.A.

SIR,—I have read with much interest Mr. Ridge's Paper on this subject and the discussion thereon as published in the JOURNAL just to hand. I quite agree that many of the by-laws now in force are both oppressive and inconvenient, and are not in any way beneficial to the community at large; but I take it that the by-laws in force in a certain district are as much the law of the land within that district as any other law. Therefore I do not agree in the aspersions cast generally on the various authorities and their officials whose duty it is to see that these by-laws are enforced, so long as they do their duty without fear and without favour.

Mr. Justice Day, in *Yabbicom* v. *King*, 1899, puts the position very clearly. These are his words: "The by-laws have the effect of law which it is not within the competence of any private body, or any body which exercises quasi-public authority for the time being, to dispense with. Such bodies are no more entitled to dispense with the law of England than private persons are entitled or have the power to dispense with it. They have no dispensing power whatever, and they are bound by the law like anybody else. They are bound by their by-laws, and they have no power at all to dispense with their by-laws." Therefore it seems very plain that, so long as certain by-laws are in force, it is the duty of the District Councils and its officials to enforce them. In the face of this, how can one conceive it possible for anyone—even for one of His Majesty's Judges—to go before the Local Government Board and ask to have a law of England modified or altered for his own personal benefit? I should say that even the Local Government Board itself has not that power. In fact, over and over again, when asked to advise on alleged contraventions of by-laws, the Local Government Board has absolutely refused to interfere. In passing I may say that personally I was pleased to see that the Chailey District Council showed a little more backbone than the District Council with which Lord Roberts had some friction a short time ago.

We all know that time after time various Councils, either through favouritism or for some other cause which I will not specify, have knowingly approved of certain plans in direct contravention of their by-laws, and buildings have been erected in accordance with such plans. That matters not; the by-laws that have been contravened still exist, and I understand that any ratepayer has the power to put them in force should he choose to do so; for these Councils are not endowed with any discretionary powers, and the fact of the plans having been approved by the Council is "neither here nor there," for, as Mr.

Justice Day says, no one can override the law of England.

I can quote a case in point, that recently came to my knowledge, where there was a most flagrant breach of the by-laws. Plans were submitted to a Council showing a building covering every inch of ground belonging to the owners; not one single square inch of space was left either at the side or in the rear; yet by some means these plans were approved and the building was erected. The clerk to the Council—himself a solicitor—told me afterwards that any ratepayer who felt himself aggrieved could break the windows or even pull down the building, for it was illegally built. I had almost written "because the plans were illegally approved," but this was not the case. These Councils can at present either approve or reject quite regardless of their by-laws; they may be morally bound to enforce their by-laws, but not legally so, and no one, not even the Local Government Board, has any power to compel them to do so. They are an entirely irresponsible body—except, of course, to the ratepayers. Therefore I say that it matters not whether an architect's plans are approved or rejected by the Council: so long as his plans are in conformity with the by-laws, and he has complied with all the requirements of these by-laws, he has conformed with the law of the land, and can go on with his building and treat the Council and its officials with contempt.

No, Mr. Editor, what we want is a set of by-laws—the fewer the better, so long as proper sanitary requirements are enforced—but exactly suited to the requirements of the district (whether urban or rural) in which they are to be enforced, and the Local Government Board at our backs to compel the various Councils to enforce those by-laws without fear and without favour. I should go further even than that—that the Council should be penalised in any case wherein it failed to enforce its by-laws. If this were so we should know exactly how we stood, and should see an end of all bribery and corruption; there would be no more "squaring" of officials or members; the ratepayers, to save their own pockets, would take care that only such men were elected to the Council as were able to bring practical knowledge and reasonable intelligence to bear on the subject; and these Councils would then take scrupulous care only to appoint thoroughly qualified officials to advise them in such matters.

I say the Local Government Board should take action in all cases of infringement of by-laws, or compel the various Councils to do so, because I believe that such action ought not to be left to private individuals, though they may be the aggrieved parties; for by-laws were framed, not for the benefit of the individual in particular, but for the benefit of the community at large.

I am, Sir, yours faithfully,
H. T. Gradon [*A.*].

REGISTRATION AND THE SCALE OF CHARGES.

76 Fellows Road, N.W.: 9th February 1905.

To the Editor of the Journal R.I.B.A.

Sir,—The result of inquiries which have been made by the Institute shows that registration is not adopted by the leading nations of the world. Still, from this fact alone, the unwisdom of the system should not be assumed. I have kept an open mind from the first stage of the movement, and read different published views *pro* and *con*, and am still unconvinced; but the hearing of a recent case, *Tarring* v. *Aldridge*, has not strengthened objections to it.

In the case I mention, after a learned counsel had remarked, "Architects had got no Act of Parliament, and he protested in the name of the public against a small body of men sitting in a room and making out a scale which they sought to impose on the public"—a cheap snarl from one learned profession at another—the Judge, Mr. Justice Phillimore, added: "It was open to the jury to reject the scale of the R.I.B.A. altogether if they liked."

If we are at the mercy of a jury unless we have a written contract with a client, or if we impose on him in getting it, or may have it flung in our face by a brutal counsel when we take an account to trial, then registration or an efficient Act of Parliament which shall secure to us our self-respect and our fees is absolutely necessary.

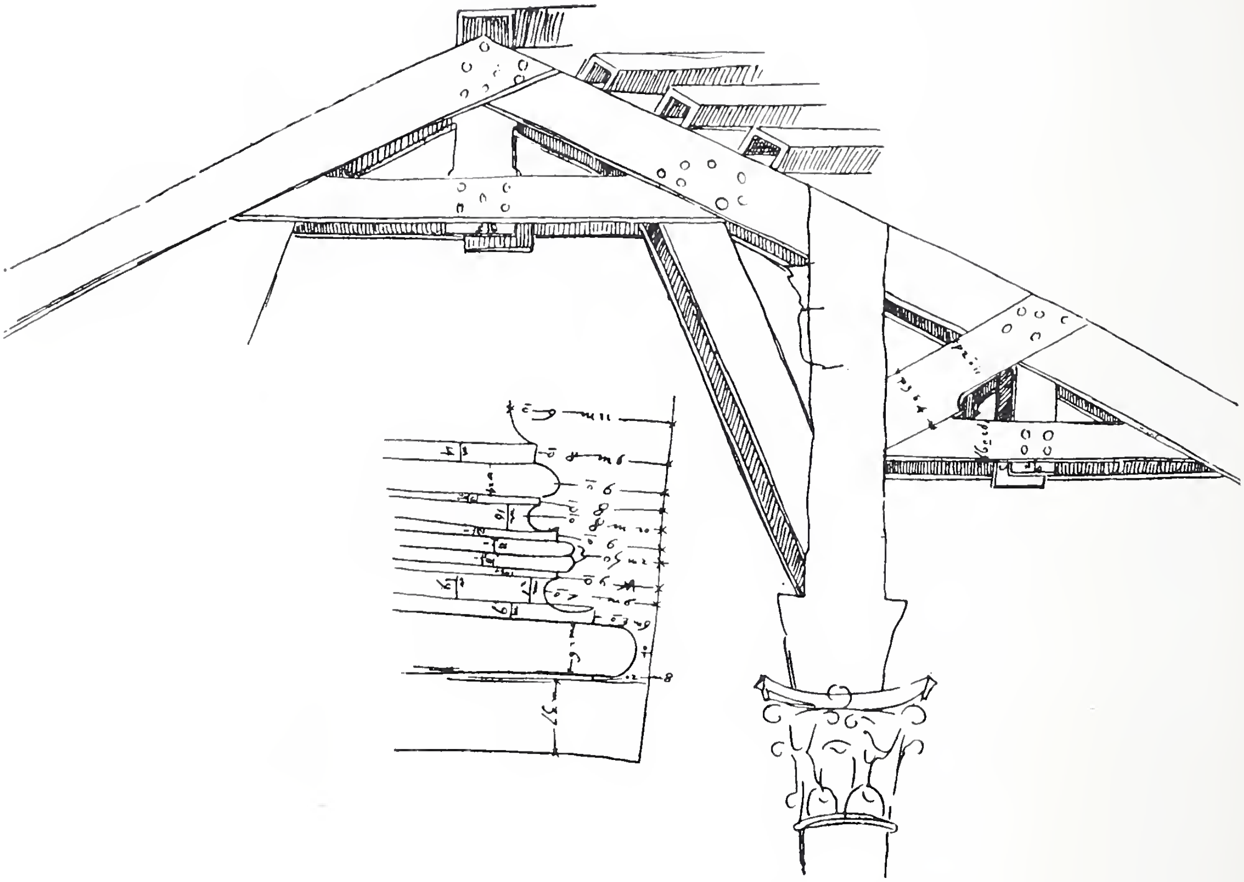
Yours faithfully,
E. W. Hudson.

REVIEWS.

A SIXTEENTH-CENTURY SKETCH-BOOK.

Papers of the British School at Rome, Vol. II. By T. Ashby, Jun., M.A., F.S.A. [*Macmillan & Co.*]

The excavations of ancient sites in Italy being now undertaken solely by the Italian Government, the foreign schools in Rome are no longer able to carry out that independent research which in former times formed part of the principal object of their establishment. In the first volume of the papers published a year ago the then Director of the British School, Mr. Rushforth, gave an admirable account of the ancient Church of S. Maria Antiqua, which was brought to light some three years ago on the removal of the Church of S. Maria Liberatrice. Awaiting the publication of the Government description with illustrations, this is still the principal record of the discoveries made. Mr. T. Ashby contributed a valuable Paper on the classical topography of the Roman Campagna, to which we hope he will again return in a future volume. This year the Committee of the School decided to publish for the use of its subscribers and students reproductions of the drawings contained in an album forming part of the collection of the Soane Museum. The volume in question was purchased by Sir John Soane at Christie's in 1818, when the sale of Robert Adam's property took place; and it is thought that these drawings came into his collection through his brother James, who went to Rome in 1762 to purchase a collection of drawings for King George III. The drawings in the album are carefully executed in ink and the walls coloured in bistre, their firmness and accuracy being very notable. In the valuable introductory notice Mr. Ashby states that they originally formed two sketchbooks, and that there have been two hands at work: the earlier artist has done the bulk of the drawings, and he ascribes their date from internal evidence to about 1515; the later artist followed up to about the middle of the sixteenth century.



FROM A DRAWING BY PHILIBERT DE L'ORME IN THE POSSESSION OF M. CHEDANNE.
(Reproduced from *L'Architecture.*)

There is no name on any of the drawings, but a copy of a letter addressed by Andreas Coner in Italian (reproduced on Plate 47) to Bernardo Rucellai, describing a sun-dial, a drawing of which is given on Plate 49, has led Mr. Ashby to accept the ascription, "Architectura civilis Andrea Coneri Antiqua Monume[nta], Roma," which is written in ink on the back of the eighteenth-century binding of the volume. Of Andreas Coner nothing is known, but Mr. Ashby has been able to obtain a copy of the inventory of his goods in the State archives at Rome (a copy of which is given in the Appendix), from which he learns that he was of German origin, from Bamberg, and possessed a valuable collection of manuscripts and printed editions of the Greek and Latin classics, mathematics, astronomy, &c. He was therefore a man of considerable learning, and his sketch-book would seem to have been made to form a collection from an antiquarian point of view of the remains of ancient buildings. Of this Mr. Ashby remarks: "Its systematic completeness is remarkable, and indeed unparalleled."

The drawings have been reproduced about two-thirds of their original size, and are very clear and distinct in their tones. An exceptional value has been given by Mr. Ashby to the subjects they represent by a minute analytical description of them, one by one, in the text, reproducing the inscriptions and comparing them with other drawings known by Bramante, San Gallo, and other Italian artists in the various Italian libraries. In a few cases the subjects are written on the drawings; but for the others Mr. Ashby has had to rely on his intimate knowledge of the remains of ancient Rome, so that in about three-fourths of the whole collection all the subjects are named.

As there are 165 drawings reproduced, it is only possible here to draw attention to a few of those which seem to us of special interest, either as representations of buildings which have disappeared, or show more than remains at the present day, there being also cases in which later excavations have revealed more.

Plates 3, 4, and 5, plans at three levels of the Colosseum, show that in Coner's time the arena had not been cleared out, and he has only been able to show fragments of the podium, a section of which is given in Plate 39.

Plate 8 is an admirable plan of the Baths of Diocletian, and is identical with the plan forming part of the Burlington-Devonshire collection made by Palladio some ten to fifteen years later.

Plate 15 gives a complete plan, but partly restored, of the Nymphæum, generally known as the Temple of Minerva Medica.

Plate 17 is, according to Mr. Ashby, a copy of Bramante's design for St. Peter's, and taken from his drawing.

Plate 22, a half plan of the Baths of Caracalla, in which the walls of the Calidarium are shown only half the thickness of those shown in Blouet and other authorities. In the N.W. and S.E. halls of the central block a door is put instead of the peristyle of columns suggested by Blouet.

Plate 24. The entablature and ceiling of the peristyle of the circular temple in the Forum Boarium, which no longer exist, are shown.

Plate 35. Perspective view of the interior of the Pantheon. The decoration of the other story with pilasters and panels is omitted, probably because it was purely decorative; as, according to Desgodetz, the pilasters were flush with the wall, and consisted of jasper slabs.

Plate 42. A base is given to the columns of the Theatre of Marcellus. Subsequent excavations have shown that none existed.

Plate 62 shows the marble panel decoration of the interior of the Pantheon, which no longer exists.

Plate 64. The lower drawing is the portico of a decastyle temple, unknown; but above the pediment cornice is a cresting which is shown on the bas-relief representing the Temple of Jupiter Capitolinus, and this seems to have been a recognised feature in some Etruscan temples.

Plate 65 represents the bronze roof trusses of the portico of the Pantheon which were taken down and melted by Urban VIII. in 1636 to make cannon for the Castle of St. Angelo. We reproduce a drawing of the same, made by Philibert de l'Orme, which was published in *L'Architecture*, the journal of the Société Centrale, Paris.

Plate 31. A valuable drawing showing Fra Giocondo's original project for St. Peter's.

Plate 52. The "Arco di Portogallo," destroyed in 1662.

Plate 77. The Doric Order of the Basilica Æmilia. This was thought by Middleton to come from the Temple of Janus. Other fragments of the same order have lately been found on the site of the basilica.

The plates pp. 71–116 represent a fine series of cornices well drawn, the names of many of which are given by Mr. Ashby.

Plates 119–123 give drawings of various capitals, as also 138–142.

Plates 124–137 are a fine series of bases of great interest and value, as many of them have disappeared in reconstruction. Some of them may be original designs by Italian artists.

Plate 148. A series of Ionic capitals: (*c*) resembles the capital from Trajan's basilica.

Plate 151. (*a*) One of the capitals of the nave of the old basilica of St. Peter's. It is well drawn, and its rich decoration suggests the magnificence of the old basilica. As an example of the work of the later hand (*c*) is a good specimen.

The other plates are of various decorative features, but 162 is specially interesting as taken from paintings in the Golden House of Nero, on which Raphael based his decorations in the Vatican.

In this summary reference has not been made to the numerous comparisons which Mr. Ashby draws between Coner's drawings and those of other artists in various collections in Italy and England. In some of these he has been assisted by the Baron de Geymüller, to whom he refers constantly throughout his descriptions. Mr. Ashby, in his introductory note, also pays a tribute to the memory of the late Mr. George H. Birch, Curator of the Soane Museum, and expresses his thanks to the trustees of the Museum for permission to reproduce the drawings; a kindness, we think, he has repaid by the invaluable descriptions he has written of the drawings.

R. Phené Spiers.

ALLIED SOCIETIES.

THE LEEDS AND YORKSHIRE ARCHITECTURAL SOCIETY.

The Principles and Practice of Garden Making.

At the rooms of the above Society on Thursday, the 26th January, Mr. Thomas H. Mawson [*H.A.*] read a Paper on "The Principles and Practice of Garden Making," Mr. G. B. Bulmer [*F.*], President, in the Chair. In his opening remarks the lecturer said: "Although I have no wish to pose as an architect, yet I am deeply interested in all subjects that appertain to the house and garden, and also in the furnishing of the home. Candidly speaking, we all know how impossible it is for an architect to master technically the vast range of ever-increasing subjects that crowd into an ordinary town practice, and I find the same in my own subdivision of the profession, if I may so call it. Most parts of our small gardens seem to lack just the one touch of regularity which is in accord with the house—in most cases a compact low hedge or a breadth of grass—touches which an architect should be able, from the nature of his training, to impart; for when once the gardener is started upon right lines he can maintain it; but the ambitions of the modern gardener are too much centred upon and too much measured by his abilities to compete in the flower-show exhibitions.

"After having enunciated guiding principles, I desire to lay special stress upon one very important branch of the subject of laying out grounds, viz. the trees and plantations, the most important essential in imparting character and local colour to the environment of a home. At no time, if the scheme is to be successful, can we divorce the house and, in the strict force of the word, the gardens from the surroundings; all must be viewed together in unity. When there is perfect freedom of choice, the three great considerations in deciding upon the site and position of the house are climatic conditions; that is, whether the pervading character of the air is humid or dry; the nature of the subsoil, whether sandy, gravelly, or clay; and the aspect; for, no matter what the prospects offer, it is unwise to build upon the north, north-west, or north-east side of a hill or knoll.

"The nature of the subsoil is a point which needs more than ordinary caution. Beds of clay, though perhaps not so unhealthy, are cold and disagreeable, and difficult to drain by the natural process of filtration. For health, beauty, luxuriance, and ultimate cheapness select a site with an understratum of gravel or marl and a good surface covering of loam. With regard to surface soil for a flower-bed, it is a good plan to lay at a depth of about 2 feet a layer of broken bricks, then to overlay this with a covering of ashes, and then about 21 inches of soil of desirable lightness. For trees and shrubs a depth of 1 ft. 6 in. or 2 feet, with a plentiful admixture of fibrous turf loam. Grass also requires a depth of soil not less than 8 inches, with a well-drained bottom, properly prepared."

With the intent of showing the successive stages of the development of a scheme and the way it gradually assumes shape the lecturer showed on the screen three schemes with plans and photographs. In each case the lecturer was the designer of the gardens; but, as he contended should always be the case, there had been a free exchange of ideas and criticisms between the architect, client, and the lecturer. The first scheme was in Ashdown Forest, the second on Berkhampstead Common, and the third in Devonshire.

G. Ernest Reason.

YORK ARCHITECTURAL SOCIETY.

The Practice of Architecture.

At the Annual Dinner of the above Society, held at the White Swan Hotel, York, on Tuesday, 17th January, the new President, Mr. Herbert Davis [*F.*], delivered the following Address:—

It is my pleasure to take this the first opportunity of thanking you for the honour you have bestowed upon me by electing me as your President for the current year. I do this most sincerely, and enter upon my duties in the full confidence that you will bear with me in all my shortcomings.

The duties which will fall to my lot in the occupation of this responsible position I promise to fulfil to the very best of my ability, and when the time comes for me to vacate this Chair I hope to have earned the same good wishes which you so heartily extended to my predecessor at the termination of his period of office.

The members of the Royal Institute have this year honoured our Society by electing the President a Member of the Council of that influential body. I shall endeavour by my attendance at the meetings of that Council at all times truly to voice your opinions and safeguard your interests.

A Society like ours, which was founded partly to afford facilities for the study of architecture, can do much for the younger members by inspiring them with that enthusiasm for our art without which it is impossible to achieve success.

When a young man becomes a member of our body he has much to learn and much to endure. Little does he know of what he will have to encounter. He may at the completion of his articles have received a thorough education as an architect, but he is unaware of the difficulties which must attend and embarrass every effort to render what he may know available and useful when he commences practice. He may be upright in all his dealings and strong in the belief of his own integrity, but he cannot even dream of the ordeal to which he will be exposed; of how he will have to resist temptations which will beset him;

of that sensitive shrinking from undeserved censure which he must learn to control; of the ever-recurring contest between a natural desire for public approbation and a sense of duty to his profession; of the injustice he must be content to meet with, even from his clients (who should be his friends), imputations on his motives, the sneers of ignorance and malice—all the manifold injuries which partisan and private malignity shower upon him. All this, if he would retain his integrity, he must learn to bear unmoved and steadily uphold the objects and aims of his profession, sustained by the reflection that time may do him justice, and that his individual efforts and aspirations will be rewarded by the knowledge that he has tried his best, and that the evidence of the buildings which he will leave behind him will do some little good to the following generations of architects and to the architectural education of the public generally.

I have always said that architecture is not, and never can be, placed on the same plane as the arts of sculpture and painting. The architect is too much restricted by the conditions under which he has to work to be called an artist pure and simple. When consideration is taken of the facts that there are by-laws to be complied with, local materials to be utilised, commercial considerations to be taken into account, and clients' wishes (however mistaken they may be) either combated with or acceded to, I think you will agree with me that the practice of architecture is too fettered in its scope to be compared for a moment with the arts of the sculptor and the painter.

I think, gentlemen, that we may congratulate ourselves on the further development of architecture during the year. In fact the development during, say, the last ten years has been so very remarkable, and still continues to be so, that we shall have very shortly, I hope, a national style which will stamp the architecture of this period as English whenever and wherever it may be encountered.

To my mind this development is due to the public at last realising the fact that architecture is a profession requiring the services of well-trained and educated men to conduct and direct the multifarious matters which come within its scope.

Yorkshire architects, or architects who have sprung from Yorkshire, have been, and are now, amongst the most brilliant exponents and strenuous upholders of the great principles which the Royal Institute of British Architects represents. We possess in Yorkshire some of the very worst buildings in England, but at the same time our county possesses the very best, which have been built under conditions that do their architects the highest credit and honour. Also I think we in Yorkshire are to be congratulated that it is greatly due to our near neighbour the Leeds and Yorkshire Society and the energy of the past and present Presidents that the subject of statutory registration has at last been taken earnestly in hand by a Special Committee in London appointed by the Institute, whose efforts I am certain will shortly result in a Bill being passed through Parliament for the registration of architects and the proper and complete education of the young in all the branches of our beloved profession.

MINUTES. VII.

At the Seventh General Meeting (Ordinary) of the Session 1904–05, held Monday, 6th February 1905, at 8 p.m.—Present, Mr. John Belcher, A.R.A., *President*, in the Chair, 31 Fellows (including 16 members of the Council), 36 Associates (including 1 member of the Council), and numerous visitors—the Minutes of the Meeting held 23rd January 1905 [p. 212] were taken as read and signed as correct.

The Hon. Secretary announced the decease of George Hurst Stanger, of Wolverhampton, *Fellow*, elected 1892; and Walter Aston, of Manchester, *Fellow*, elected 1901.

The Hon. Secretary announced that the late Mr. J. T. Wimperis [*F.*] had bequeathed by will to the Institute the sum of £1,000 for the encouragement and promotion of the study and knowledge of architecture or other purposes of the Institute.

The Hon. Secretary further announced that Mr. J. Macvicar Anderson, *Past President*, had presented to the Institute twenty-four shares in the Architectural Union Company, and Sir Aston Webb, R.A., *Past President*, nineteen shares in the same company, for the purposes of architectural education.

Mr. Vincent Hooper [*A.*] attending for the first time since his election was formally admitted by the President and signed the Register.

The following candidates for membership, found by the Council to be eligible and qualified according to the Charter and By-laws, were recommended for election:—As FELLOWS (18): Frederick Edward Fellows Bailey (*Assoc.* 1879) (Walsall); Harold Bailey (*Assoc.* 1895) (Newark-on-Trent); William Bevan (*Assoc.* 1902) (Chief Government Architect, Pretoria, S. Africa); Charles Belfield Bone, M.A. Oxon.; John Campbell (Government Architect, Wellington, New Zealand); William Edward Vernon Crompton (*Ashpitel Prizeman* 1894, *Assoc.* 1895); Charles Burrows Flockton (*Assoc.* 1896) (Sheffield); John Francis Groves (Newport, Mon.); Arthur Jessop Hardwick, P.A.S.I.; Alfred Victor Ingall (Birmingham); Arthur George Leighton; Henry Hill McConnal (*Assoc.* 1882) (Walsall); Temple Moore; Archibald Neill (Leeds); Edward Turner Powell; Percy Tom Runton (Hull); William Gilmour Wilson (*Assoc.* 1881); Edmund Walter Wimperis (*Assoc.* 1889). As ASSOCIATES (31): Thomas Ford Amery (*Probationer* 1897, *Student* 1902, *Qualified* 1904); Douglas Anderson (*Probationer* 1898, *Student* 1901, *Qualified* 1904); Edwin George Goodson Bax (*Probationer* 1897, *Student* 1902, *Qualified* 1904); William Somerville Beaumont (*Probationer* 1893, *Student* 1896, *Qualified* 1904) (Manchester); Martin Shaw Briggs (*Probationer* 1899, *Student* 1902, *Qualified* 1904) (Otley, Yorks); John Sydney Brocklesby (*Probationer* 1897, *Student* 1901, *Qualified* 1904); Charles Fry Callow (*Probationer* 1899, *Student* 1901, *Qualified* 1904) (St. Leonards-on-Sea); Charles Pitwood Carter (*Qualified Special Examination* 1904) (Mansfield); George Rowland Ellis (*Probationer* 1895, *Student* 1897, *Qualified* 1904) (Manchester); John Alfred Fletcher (*Probationer* 1895, *Student* 1901, *Qualified* 1904) (Leicester); Horace Charles Fread (*Qualified Special Examination* 1904) (East

Molesey); Willie Josiah Freeman (*Probationer* 1900, *Student* 1901, *Qualified* 1904) (Halifax); Charles Lovett Gill (*Probationer* 1901, *Student* 1902, *Ashpitel Prizeman* 1904, *Qualified* 1904); Herbert Haylock Golding (*Probationer* 1902, *Student* 1903, *Qualified* 1904); Percy Archibald Hinchliffe (*Probationer* 1896, *Student* 1899, *Qualified* 1904) (Barnsley); Percy Aspden Horrocks (*Probationer* 1900, *Student* 1901, *Qualified* 1904); Arthur Benison Hubback (*Qualified Special Examination* 1902) (Kuala Lumpur, Selangor); David Barnes Jenkinson (*Probationer* 1902, *Student* 1903, *Qualified* 1904) (Rotherham); George Alfred Johnson (*Probationer* 1902, *Student* 1902, *Qualified* 1904); James Miller (*Probationer* 1898, *Student* 1900, *Qualified* 1904) (Sheffield); Charles Nicholas (*Qualified Special Examination* 1904) (Horley); Herbert Luck North, B.A. Cantab. (*Qualified Special Examination* 1904) (Conway, N. Wales); Claude Paterson (*Probationer* 1900, *Student* 1902, *Qualified* 1904) (Bowdon, Cheshire); Albert Reginald Powys (*Probationer* 1900, *Student* 1902, *Qualified* 1904) (Montacute, Somerset); Edgar Quiggin (*Probationer* 1900, *Student* 1901, *Qualified* 1904) (Liverpool); Gerald Sanville Salomons (*Probationer* 1899, *Student* 1901, *Qualified* 1904) (Manchester); Henry Richard George Strong Smallman (*Probationer* 1900, *Student* 1902, *Qualified* 1904); Neil Campbell Smith (*Probationer* 1900, *Student* 1900, *Qualified* 1904) (Moffat, N.B.); Ernest George William Souster (*Probationer* 1899, *Student* 1902, *Qualified* 1904) (Northampton); Charles Joseph Thompson (*Probationer* 1899, *Student* 1901, *Qualified* 1904); John Norman Randall Vining (*Probationer* 1899, *Student* 1900, *Qualified* 1904).

The President announced that the Council proposed to submit to His Majesty the King the name of Sir Aston Webb, R.A., as a fit recipient of the Royal Gold Medal 1905, for his executed works as an architect.

The President having delivered an Address to Students, and Mr. A. N. Prentice [*F.*] having read a Criticism of the Works submitted for the Prizes and Studentships 1905, a vote of thanks moved by Professor Beresford Pite [*F.*] and seconded by Professor W. R. Lethaby, F.S.A., was passed to the President and Mr. Prentice by acclamation.

The presentation of prizes in accordance with the Deed of Award was then made by the President, and the various Students introduced, as follows:—

Essay Medal.
  Institute Medal and Twenty-five Guineas to Miss Ethel Charles.
  Certificate of Hon. Mention and £10. 10*s.* to Mr. A. Romney Green.
  Certificate of Hon. Mention to Messrs. J. J. Waddell, J. Murray Kendall, L. P. Abercrombie, Walter H. Godfrey, Cyril E. Power, and H. P. G. Maule.

Measured Drawings Medal.
  Silver Medal and £10. 10*s.* to Mr. E. G. Wylie.
  Certificates of Hon. Mention to Messrs. W. Harold Hillyer and A. R. H. Jackson.

Soane Medallion.
  The Medallion to Mr. S. H. Maw.
  Certificates of Hon. Mention to Messrs. R. W. Pickering and W. S. A. Gordon.

Owen Jones Studentship.
  Mr. H. Morley introduced as the *Owen Jones Student.*

Pugin Studentship.
  Mr. Edward Garratt introduced as the *Pugin Student.*
  Certificate of Hon. Mention and £10. 10*s.* to Mr. H. A. Dalrymple.

Godwin Bursary.
  Mr. F. R. Hiorns introduced as the *Godwin Bursar.*

Tite Prize.
  Certificate to Mr. R. Atkinson.
  Certificate of Hon. Mention and £5. 5*s.* to Mr. Alick G. Horsnell.
  Certificate of Hon. Mention to Mr. C. L. Wright.

Arthur Cates Prize.
  £42 to Mr. F. Winton Newman.
  Certificate of Hon. Mention to Mr. Vincent Hooper.

Grissell Gold Medal.
  Ten Guineas to Mr. J. A. M. Hunter.

Ashpitel Prize.
  Books of the value of £10 to Mr. C. Lovett Gill.

Soane Medallist 1903.
  £50 (second moiety) to Mr. Edwin F. Reynolds, *Medallist* for 1903.

Pugin Studentship 1904.
  Medal and £40 to Mr. F. C. Mears, *Pugin Student* 1904.

Godwin Bursary 1904.
  Medal and £30 (second instalment of £65) to Mr. H. Phillips Fletcher, *Godwin Bursar* 1904.

The proceedings then closed, and the Meeting separated at 9.30 p.m.

LEGAL.

Buildings Wrongly Licensed by Borough Council.

THE LONDON BUILDING ACT.

Mr. Lane, K.C., the magistrate sitting at the West London Police Court, had before him, by adjournment, on the 28th January, after several lengthy hearings, a summons taken out by the London County Council against the Fulham Football and Athletic Club, Limited, for retaining a temporary building on their ground without obtaining the approval and licence of the London County Council, required under Sections 82 and 83 of the Building Act. Mr. Bodkin (instructed by Mr. Chilvers, of the Solicitors' Department of the London County Council) supported the summons; and Mr. G. Humphrey (instructed by Mr. Blanco White) appeared for the Club.

The buildings, which were erected in August 1903, afforded seating accommodation for 1,000 people in tiers varying from 3 feet to 30 feet above ground, and comprised also, in the lower portion, dressing-rooms and bath-rooms and lavatories for the players; also refreshment rooms, storerooms, &c.

The various rooms were lighted and warmed by gas, and a proper system of drainage &c. was established. The buildings, except as to the materials and method of construction, had more the character of permanent buildings than temporary structures.

The buildings were constructed with wood framing, braced in places with iron rods and straps, covered and enclosed externally below the tiers of seating with corrugated iron, and were also roofed with corrugated iron.

The contractors for the buildings, Messrs. Robert Iles, Limited, of Fulham, erected the buildings under a licence granted by the Fulham Borough Council for a temporary wooden structure for one year, on the condition that the structure was to be erected to the satisfaction of their officer, the Borough Engineer and Surveyor, which licence was renewed in September 1904 for one year.

After hearing the evidence and the lengthy arguments of counsel, the magistrate decided that it was a composite structure made of wood and iron, and therefore was within the jurisdiction of the London County Council, requiring their approval, under Section 82 of the London Building Act 1894.

The magistrate further made a demolition order that the buildings should be completely removed within three months (*i.e.* the end of the present season), and imposed a nominal fine of 10*s.*, each side to pay its own costs.

ON ARCHITECTURAL EDUCATION.

By Reginald Blomfield, A.R.A.

Read before the Royal Institute of British Architects, Monday, 20th February 1905.

I HAVE been invited to address you this evening on the subject of architectural education. It is one that has long engaged the attention of all thoughtful architects. Some fifty years ago the Architectural Association set out on its task of self-improvement, and in the presence of architects I need say little of the energy and enthusiasm of those who founded the Association, and of those who have since carried on its educational work. They are well known to us all, and show that, for two generations or more, architects have felt that the methods of Pecksniff were inadequate, and that some more systematic training was necessary if the student was to be turned out properly equipped for the work of his life. I think the whole profession must gratefully recognise the pioneer work that has been done by the Architectural Association in this regard. Much has also been done elsewhere, for instance in the schools of University and King's Colleges, under Professors Simpson and Reilly at Liverpool, and Professor Capper at Manchester. But notwithstanding this increasing tendency to develop school training, and the improvements that have been made in it, the pupilage system has in the main held the field. No sustained, or so far successful, attempt has been made to bring it into relation with the schools, and to co-ordinate the various methods of training in use in the latter.

With the merits and defects of the old-fashioned method of pupilage we are all more or less familiar. Its merits are that the pupil sees actual work in preparation; that he has the opportunity of noting how far theory has to be modified in practice, and of learning how the business of building operations is actually conducted, so far as the architect is concerned. Moreover, he has the advantage of the personal guidance of his master, a somewhat variable quantity by the necessity of the case. The weak points of the pupilage system are that it tends to become a "go-as-you-please" affair; that is, that it leaves large gaps in the student's knowledge which he has to make up afterwards as best he can; that the student seldom, if ever, gets any glimpse of the theory and principles of architecture; and lastly that, through want of preliminary training, the pupil does not learn half what he might during his term, unless he is exceptionally intelligent. For the first year or two, all he can do is to learn the use of his instruments and the ordinary methods of preparing working drawings. In the earlier part of his time he is working in the dark, realising imperfectly the meaning of the lines which he laboriously traces; indeed, pupils have been known to go through their whole three years without grasping the fact that it is a matter of practical moment whether a wall plate is drawn $4\frac{1}{2}'' \times 3''$ or $9'' \times 6''$. I fancy a good many of us in our early days of practice must have been rather aghast when brought face to face with the results of our drawings and specifications in actual brick-and-mortar. It might, indeed, be a useful exercise (if, perhaps, a somewhat uncharitable one) for a teacher to take his students through the streets of any big city and point out the remarkable results in building of this lack of concrete imagination, this ignorance in the designer of the terrible things he is asking of his builder and inflicting on his client. The cause is insufficient training. A pupil in an architect's office has, to a large extent, to pick up what he can; and as he is only there for a limited time, it is highly important that before entering the office he should at least have qualified himself to learn; in other words, should have gone through such preliminary training in the schools as will enable him to get his bearings in the office without waste of time. We have, therefore, to consider how we are to start the student in his course of architectural training, what subjects he should study, and how they should be taught; and the more closely we consider this question the wider it appears. It is one that must be dealt with comprehensively, not in a hand-to-mouth manner, but on a logical and consecutive system. And though I do not wish to waste your time with remote speculations, it is evident that to arrive at clear ideas in this matter we must start from a principle; we must define what we want in an architect, and we shall then be in a better position to consider the best methods of training our man.

Looking back on the history of our calling one finds that for the last hundred years or so there has been considerable difference of opinion as to the function of the architect in civilised society. Before that date, at any rate from the days of the Renaissance till about the end of the eighteenth century, it was generally understood that an architect was an expert in building, and that whatever else he might know or do there was no questioning his knowledge of construction. More than that, a cursory study of the work of such men as Blondel in France or Ware in England will place it beyond doubt that their training in this regard was as thorough as it was possible to make it. Moreover, architecture was still considered to be one of the learned, or perhaps one should say intellectual, professions, and an architect was expected to be at least up to the average of other professions in intelligence and general culture. The latter part of the eighteenth and most of the nineteenth century, in England, saw a large incursion of the amateur into the domain of architecture—so large indeed that, to a great extent, the direction of public intelligence in architecture passed out of the hands of architects into those of the literary amateur. Questions of taste and style in the narrow technical sense were hotly debated; the side issues of architecture, archæology, ecclesiology, and other meritorious but in this case irrelevant studies, obscured the essential purpose and province of architecture, the study of applied form. Details of ornament were sought and analysed in preference to the plan and construction of buildings, and indeed the orders themselves have not weighed more dismally on the young imagination than the catalogues of Gothic tracery and mouldings, and the superficial classifications of its periods. Finally the architect drifted more and more into the position of a learned ornamentalist. He has drifted into a great many other curious positions as well—chiefly of the business order, about which I need not trouble you—but thoughtful men have for some time past been dissatisfied with the popular conception of architecture, with the constant shifting backwards and forwards of architectural taste, which can only lead to the ultimate supersession of the architect by the engineer on the one hand and by the commercial decorator on the other.

Indeed, in an art such as architecture, so long as attention is concentrated on accidents of style, on the mere external clothing of an organic idea instead of on the idea itself, there is no reason why fashion should not succeed fashion indefinitely; there is nothing to prevent a constant eruption of efforts in *l'art nouveau*. Architects have begun to recognise the meaning and necessity of the familiar phrase that construction is the basis of architecture; to put it in other words, that if, as is the case, architecture is the art that translates construction into beautiful forms, the architect must master the principles and methods of construction before he is in any position to translate them at all. The architect is the artist of abstract form in building. Ornament may or may not come into his scheme. If it does, it is as part of the expression of a larger idea towards which he would invite the co-operation of his colleagues, the painter and sculptor. The architect for his part will contribute the idea that binds together the whole composition, he will study as an artist the selection and combination of such methods of building as not only meet the practical conditions, but also make the most of the æsthetic effects to be obtained by mass and proportion, light and shade; what a modern critic suggestively calls "space composition." Such generally is, I think, the view of the architect's province, which is slowly emerging from the tangle of the nineteenth century. I need hardly point out that in a modern architect a great deal of knowledge and experience in other matters is required as well, but the point at which I am now driving is that the real technique of an architect consists of the mastery of building processes, these are the means by which he has to produce his effects; they are, in fact, the true vehicle for the expression of his imagination. To put the point in another way, the architect thinks in terms of masonry or brickwork, steel or iron work, building processes and materials generally, much as a sculptor or a painter thinks in terms of modelled form, or line and colour.

Besides this, there is another highly important aspect of the matter which we as a profession cannot afford to overlook, and that is the possibilities of new methods of construction. The days of architecture, limited to materials mentioned in the Old Testament, are past for ever. Steel and iron render possible feats of construction which on economic grounds alone are irresistible, and it is our business, as artists of form, to study this steel and iron work in order that out of its practical use we may develop methods of construction which have a beauty of their own in their adaptation of means to ends. Our training ought to enable us to take this matter up where the engineers are compelled to leave it through want of training in form, and lack of artistic imagination. In a remarkable Paper recently read by Mr. T. G. Jackson at the Society of Arts great stress was laid on the necessity of architects grappling with new conditions and methods of construction. The architect of the future will not be able to ignore these matters. He will not be content to leave them to the engineer-draughtsman, able and useful man though he is, or to allow his design to be cramped by his own ignorance and the limitations of another man's mind. He must know for himself exactly what he is doing with his building if the flights of his imagination are not to land him in ambitious failure on the one hand, or in the old familiar ruck on the other.

I must apologise for this roundabout way of approaching the question of education; but the ideal which we form of an architect is a necessary premiss to any theory of his training. Keeping in view the ideal which I have endeavoured to indicate, we have now to consider what method is best adapted for its realisation. The question has been, and will be, answered in many different ways. In my student days it was supposed to be a matter of mouldings. Some have said it is all to be done by drawing, others by qualifying as a handicraftsman; and some brave spirits have cut the knot by asserting boldly that the architect is a superfluous person, and has no *raison d'être* in a properly constituted society. Into these highly interesting speculations I do not propose to enter. We are here as business men to discuss the best practical methods of training our students. The matter has, as you know, been for some time under the consideration of the Board of Architectural Education, and I hope to indicate to you the general conclusions arrived at by the Board. A word or two of history is necessary for those who have not followed the recent developments of the question.

I have already referred to a widespread feeling among architects that architectural education is in an unsatisfactory state; and in saying this I do not for a moment cast any reflection on the able men who are engaged in architectural education in London and in the provinces. They are not responsible for the systems which they found, and in several cases have made strenuous efforts to reorganise them; but the time has come for a united effort, and they will, I am sure, not merely pardon, but sympathise with, a statement of those points which they themselves will probably most heartily wish to have reformed.

On the one hand, no recognised relationship had been established between training in the schools and training in architects' offices; and on the other hand, it has been felt that the training given in the schools leaves something to be desired. In the first place the ordinary syllabus, with its plethoric list of text-books, has attempted both too much and too little. Those who, some years back, drew up the list of subjects generally prescribed do not seem to have been clear in their own minds whether they were to give the student a sort of general education or whether they were to limit their efforts to technical instruction. The result was that an imposing list of subjects was prepared, the mere enumeration of which was enough to daunt any but the most resolute student, and even he could not by any possibility master them all. The time allowed for a student's training is little enough as it is, and it becomes a matter of necessity to throw overboard all superfluous baggage. Another point requiring amendment has been the insufficiency of practical demonstration; a point of the first importance in an art such as architecture, which deals with actual shapes and solid bodies. London has been behindhand in this matter. The models scantily provided in its architectural schools have been as a rule models of ornament, caps, spandrels, carving, and the like, not models of buildings and parts of buildings, or scale models of various methods of construction in different materials. Probably the most unprofitable place in which a student could have wasted his time was the old Architectural Museum, now happily converted into the schools of the Architectural Association. Here the student—I am drawing upon the somewhat uncertain memory of twenty years ago—might find models of half the famous Gothic capitals of England hung up to nails on the wall. I ask any practical architect, how could he be expected to learn anything whatever of architecture from this congeries of fragments divorced from their natural setting? He might as well be expected to construct a picture of a tree he had never seen from a leaf pinned to a wall. The whole idea of such a museum was the faithful reflex of the amateur preciosity that controlled English architecture thirty to forty years ago. The amateur was on safe ground with ornament. He could see it, he could draw it, he could talk about it; but when it came to construction he felt himself in deep water, and therefore usually eliminated the art of building from his conception of architecture. Such questions as how and why a building stood up at all were a matter for the engineer, not for such a sensitive and emotional creature as the artist of the literary imagination.

The kind of museum of models that is wanted, and that should be attached to each school, is something pre-eminently practical; it is one that should enable the student to visualise what he is studying; it should supply the apparatus for that most important branch of study, practical workshop demonstration. The difficulty, of course, has been that such an equipment has been beyond the resources of individual schools; and this brings us to a third defect in the existing system, namely, that no attempt has yet been made to co-ordinate the various training institutions; they have, to a large extent, missed fire by going off singly. Much effort is inevitably wasted by this isolation—I will not call it rivalry. If the different schools attached themselves to one system, and worked hand in hand, it is evident that they would have larger resources to draw on; parents and guardians would have one well-understood method of training before them, instead of half a dozen; and the risk of failure which attaches to individual effort would be minimised. Without going further into detail I should summarise the chief defects of the present system of schools as (1) faults of syllabus; (2) faults of teaching method; (3) the absence of co-ordination, resulting in waste of resources and loss of driving power.

In the early months of 1903 some informal conferences of architects were held to discuss the situation. It was found that there was much greater agreement between men of varying schools of thought than had been anticipated; and finally, at the invitation of the Royal Institute of British Architects, a Board of Architectural Education was formed to consider the whole matter. The members of this Board stated their opinions in writing on the main points at issue, and the conclusions arrived at were embodied in a report which, together with a syllabus, has been provisionally adopted by the Board. These conclusions dealt with five points, viz.—

1. Preliminary education.
2. The length of the proposed course.
3. The syllabus of training.
4. The laboratory or workshop for training in practical work.
5. The steps to be taken to initiate and administer the scheme.

The first question is that of preliminary education. It is a difficult matter to assess the exact amount of general education necessary to an intending student of architecture. From one point of view the more he has, the better; from another it is a fact that an intending student may have great natural aptitude for architecture, but little aptitude for, or at any rate little opportunity of acquiring the knowledge usually given by a good general education. It would be very undesirable to exclude such a student from the course. It has therefore been considered best not to impose any preliminary test, but to leave it to the individual training institutions themselves to lay down the amount of preliminary education which they severally consider desirable. The Board, however, consider that evidence should be shown of some capacity in drawing, both geometrical and freehand. An intending student, who is all thumbs and fingers when he tries to draw, is better warned off at the start, for it is improbable that a boy who has absolutely no power of expression at the end of his fingers will be able to get his ideas out on to paper; and though draughtsmanship is not architecture, yet some faculty of drawing is evidence of some possible artistic instinct.

2. The length of the proposed course is a somewhat difficult question. The usual three years is clearly insufficient. In the old days it used to be five, when the young architect did not have to cover half the ground he does now. Yet it would probably be difficult to revive the five years' system, and accordingly four years is recommended as a minimum. Of this time it is suggested that the first two years should be spent in the schools, the last two in an architect's office. The object of this is twofold: first, to enable the student to master his rudiments in the schools, in order that when he enters the architect's office he may know how to learn, and get the full advantage of his opportunities in the office; secondly, that in view of the pupil being partially trained, and therefore of some little use, architects may be disposed to take pupils at a lower premium, and parents and guardians may not be put to greater expense than they are under the present pupilage system. A point of much importance is that the pupil should continue his studies in the schools during his term in an architect's office. The preliminary course must of necessity be rudimentary, and should be supplemented by more advanced studies under his old teachers during his last two years. The advantage of this will be that his studies will be pursued on a consecutive system, and under competent supervision from first to last. In order to provide the necessary sanction it is suggested that, on the completion of the course, a certificate should be granted to the

student in consideration of satisfactory progress and capacity as proved by his work in the schools attested by his teachers, and by a study of some architectural project to include working drawings and specifications, and an analytical account of the nature and intention of the project. This study would be on the lines of the thesis submitted for degrees in certain University courses. The certificate would be endorsed by the architect with whom the student had served his time. I should point out that the exact apportionment of time as between the office and the school is still under the consideration of the Board. It has been suggested that the course should be arranged on a sandwich system—say, for instance, six months in the schools, followed by six months in the office, and so on. This arrangement might possibly be more convenient for the schools than for the architect's office, and the matter is one which calls for an expression of opinion from practising architects.

3. The third point is the syllabus. I have pointed out above the loss in prestige and resources caused by the isolation of the various schools, and the necessity of co-ordinating the different systems of training. The first step towards this would be the adoption by the schools of a common syllabus. In drawing up this syllabus the Board have been guided by the following considerations: (1) that it should be thoroughly practical, that is, lay the main stress on the teaching of construction as the basis of architecture; (2) that it should not attempt too much, that is, that it should not overload the student with a vast array of subjects, but should cut down those subjects to the essential and irreducible minimum, and insist on the student obtaining a thorough mastery of them as far as he goes. The syllabus proposed rests on the general principle that construction is the basis of architecture, and the correlative principle that architecture is the interpretation of construction into forms of æsthetic value. There are, of course, certain phases of architecture, such, for instance, as the design of a triumphal arch, in which construction and its interpretation are not the only motive; but for the purposes of the introductory training, which is all that the schools can offer, the principle just stated seems to be the best practical basis. The object of the training is to familiarise the student with the actual facts of building, to teach him to visualise them in his imagination, and to use his brains in their treatment. He must learn so much applied science as is necessary for this purpose, and so much drawing of all kinds as will enable him to make his ideas intelligible both to himself and to others. His exercises in design will be concentrated on plan and construction, rather than on façades and frontispieces, and his readings in history will be undertaken to furnish his mind with clues and analogies drawn from the solution of constructional problems in the past. The teaching of design and history has always been rather a burning question, and in preparing their syllabus the Board have aimed at establishing a definite point of view from which alone it should be undertaken. There is always a danger of the student's attention wandering off from hard thought into copy. It is so much easier to copy than to think, that there is a constant tendency to drop to the lower level—a tendency which is encouraged by dwelling too much on the distinctive features of historical styles. History and design should be considered as illustrative of the study of construction. In design, for example, the student should be taught to aim at the best practical use of his materials, and at the best abstract form without, at any rate at first, attempting ornament; and he should be systematically discouraged from literal copy of known examples. The teaching of history, again, may be dangerous if it induces in the student an archæological instead of an inventive habit of mind. The archæological method of teaching history is to say that a building was built in such and such a year, and that by reason of its mouldings it belongs to the First Pointed, or any other style, and *there it leaves the subject.* This method has its value in the proper place, but not in the preliminary training of the schools. What one wants of the lecturer is that he should explain

how and why the building took the form it did, why it was covered in in one way and not in another, how it rose as an organic structure conditioned by the uses to which it was to be put, the materials of which it was built, the knowledge and skill of handicraft possessed by its builders.

I admit that this is a difficult thing to do. Yet the attempt is being made by the ablest of our teachers, and, in my opinion, it is only in this way that the study of history will be useful in the schools. In no other way will the student learn that architecture is a real and living art, and has been so since the days of the Egyptians—since, indeed, there has been any architecture at all.

The same practical considerations should control the teaching of drawing. The object of architectural training is not to turn out a draughtsman—and there can be little doubt that in recent years mere draughtsmanship has occupied much too prominent a place in the general conception of architecture. On the other hand, it is important that the student and the architect should not be hampered in their studies by incapacity to translate their ideas into line; indeed, it has often seemed to me that some of the faults we freely criticise in each other's work are partly due to imperfect powers of drawing, and by this I mean insensibility to fine line, and a certain blundering clumsiness of the artistic sense. An architect ought to be able to get out on paper whatever he wants; but when he has done that, he has done all that he has to do as an architect. As to the marvels of skiography and perspective, the exquisite brushwork, the magnificent audacities in sky and tree with which the Continental draughtsman fascinates the public, the architect should have none of them. To what we may call the architectural mind a few pen-and-ink scratches by Peruzzi are more suggestive than the most elaborate effort of some winner of the Prix de Rome.

By following this method of elimination the syllabus reduces itself to a modest list of five subjects.

(1) Building materials.

(2) Construction, including (*a*) applied mechanics, strictly in practical relation to construction, and (*b*) the practical methods of the building trades.

(3) Architectural drawing, including working and freehand drawing, solid geometry, and measured drawings of historical examples of architecture.

(4) Geometrical projection and rudimentary perspective, this latter to be studied as an aid to the shaping and modelling of buildings, not as a means of elaborating architectural drawings.

(5) Design and the history of architecture as supplemental to and elucidatory of the study of construction.

The above subjects would be taught by class work in the schools and by demonstration in the laboratory or lecture theatre of practical work.

These five subjects would be studied in the schools during the two years' preliminary or introductory course. The advanced course, which would follow on, would include the further study of materials and construction, design, history, and architectural drawing, with some rudimentary instruction in modelling. "In putting forth the syllabus" (I am now quoting the Report) "the Board desires to point out that its object is to lay a sound foundation on which the student can continue his training in later years. It cannot contemplate the full equipment of an architect as possible in a four years' course."

The laboratory or practical workshop which formed the fourth of the subjects considered by the Board is an essential feature of the scheme. The practice has always prevailed of sending pupils on to buildings in course of erection, to pick up what practical hints they can; but the results have not entirely answered expectations. The pupil wanders about, gazing vaguely at scaffold poles and girders; the foreman is too busy to attend to him, or may have no power of explanation; and for want of proper guidance the pupil's visit is apt to end in a relapse into temporary mental paralysis and a cigarette. Such work must be done under systematic direction if it is to benefit the student; and though one would certainly retain the practice as a valuable auxiliary training, the best solution seems to be the establishment of workshops for practical demonstration in the building trades by competent men. The demonstration given in the laboratory would be in intimate relations with the lectures given in the class-rooms of the schools, and the course would be arranged so that the training in the class-rooms and in the workshops should proceed together. In order to avoid misconception I may say at once that there is no idea of using these workshops for the purpose of turning the student into a skilled plumber, or mason, or whatever the trade may be. The object is to enable him to see with his own eyes, and if necessary handle with his own hands, the various materials and processes employed, in order that when he comes to direct these processes himself in after years he may have actual knowledge and realisation of what he is doing. Engineering students have to practise actual handiwork; architectural students are not less concerned with construction, and there is no reason why they should not master it as thoroughly as the young engineer. I cannot help thinking that there is a bit too much of the dilettante and the fine gentleman about the modern young architect. He would do better if he would take off that elegant frock-coat and go to work in his shirt-sleeves. Indeed, the profound scepticism of the public in regard to architectural capacity as compared with engineering is not likely to be removed until we have dealt with this radical fault in our training.

We now come to the last of the five points dealt with by the Board, viz. the steps to be taken to initiate and administer the scheme. These must to some extent be tentative at first. The scheme can only get under weigh by the goodwill and co-operation of the various educational bodies concerned, and it is proposed to submit the scheme and its syllabus to recognised architectural training institutions and to invite them to adopt it. The establishment of a laboratory or workshop in connection with each separate school would be impracticable for financial reasons. Where engineering schools exist side by side with architectural schools, as in some of the modern universities, the student should certainly avail himself, as far as is possible, of the training there given; but, generally speaking, it is proposed to invite the county councils to place their technical workshops at the disposal of recognised training institutions for purposes of practical demonstration.

It will be evident from this proposal that the adoption of a uniform method with a view to the co-ordination of the various training institutions which are at present working in isolation throughout the country is a cardinal feature of the scheme. A word of explanation is necessary in regard to the word "uniform." In recommending the adoption of a uniform system and syllabus the object the Board has in view is to reinforce education, to enlarge its opportunities by bringing the schools into touch with one another, so that, for example, their united resources may admit of lectures and demonstrations on a level beyond their attainment individually. The last thing the Board has in view is the establishment of a rigid and inelastic method of training. Uniform does not mean permanent. There is a dangerous tendency in all systems however excellent to ossify, as one may say—to stereotype their methods in a manner that is ultimately hostile to all progress. This tendency has to be carefully watched and resisted. Nothing could be more fatal to the course of true education than an attempt to tie down a system of architectural training to the Procrustean bed of statutory definition. The Board is at one with all educationists in urging that our method should be largely tentative, sympathetic, and sensitive. This is peculiarly necessary in such a case as that of modern architecture, where we have lost our old traditions, and have yet to build up a new one. The term "uniform," therefore, is to be understood as aimed, not at the establishment of a fixed and cast-iron system, but at the co-operation of the schools in a scheme adopted by them all. One cannot be too grateful to those bodies, such as the Architectural Association, which have paved the way for sounder training by their individual efforts; but the time has now come to draw these efforts together, and to put an end to the waste of energy which results from their lack of union. With this object in view it is proposed that the Board of Architectural Education should act as a central advisory body to the several schools, with power to direct the administration of the scheme by means of visitors who would report to the Board on the work done in the schools. A Board with such powers is necessary to initiate and administer such a scheme as is proposed; and though the future constitution of the Board has not yet been determined, there can be no doubt that the aim will be to make it as representative as possible of the profession generally. For it is only by the co-operation of the entire profession that this scheme of architectural education can be made effective.

It is with this object that I have endeavoured to-night to put before you a clear account of the progress of the scheme up to the present date. There is nothing revolutionary in these proposals. The object of the Board throughout has been to avail itself of all that is sound (and there is a great deal that is sound) in existing methods, and to develop and co-ordinate existing systems on such lines as will get the best out of them for the practical training of architectural students. It is time that the profession pulled itself together, and here is the opportunity for doing so. Complaints are common—and I fear well-founded—that the profession does not meet with the recognition it deserves. Nobody seems quite certain what sort of creature an architect is, or what sort of position he claims for himself. In the provinces, more particularly, the auctioneer and house agent, the decorator and upholsterer, indeed, one is tempted to say the failures of other trades, compete with him and supplant him, and desperate remedies are proposed for this state of things; but I maintain that we have only ourselves to thank. The profession, as a whole, appears to have lost touch of the essential purpose of architecture; it has not kept abreast of modern construction; it has ignored the fact that architecture is both a science and an art; it has allowed its standard of knowledge and capacity to fall below the proper level. It is because the average of attainments amongst us is not what it should be that the mere adventurer is able to step in, assert that he is just as good a man as the architect and much cheaper, and get the public to believe him. I need hardly say he is nothing of the sort, nothing but a fraud and an imposture; but it is the public who have to be convinced of this.

The remedy is in our own hands, and it is to put our house in order, to prove by visible evidence throughout the country that the practice of architecture is an affair of real skill and solid knowledge; that the architect from his point of view is an expert in building, every bit as much as the engineer is from his. When the public realise that to spend their money on building to the best advantage they must go to the architect as the man who really knows his trade, they will readily accord us the recognition due to men of special knowledge and admitted ability in their own calling. The first step to this desirable end is to see to the training that we provide for our students, and to ensure that they, at any rate, shall master the technique of the great art of building. So, and I believe only so, shall we prepare the way for the return of architecture to her rightful place as the mistress of the arts.

DISCUSSION OF THE FOREGOING PAPER.

The President, Mr. JOHN BELCHER, A.R.A., in the Chair.

SIR ARTHUR RÜCKER, D.Sc., F.R.S., Principal of the University of London, who rose at the instance of the President, said: I feel very much complimented by your asking me to move a vote of thanks to the lecturer, both because I cannot for one moment pretend to have any expert, and I am afraid very little dilettante, knowledge of your art, and also because I certainly hoped I should have followed gentlemen who would have been able to speak much more to the point than I can hope to do. But I take it as a great compliment to the University of London and myself that I should be asked to propose this vote of thanks, and I do so with the greatest possible pleasure. In the first place, there is one point on which I feel very strongly, and about which I should like to say a word or two. I have all my life been a devotee of pure science. I have seldom been set to do any practical job in the sense in which you gentlemen here would regard a job as practical; but, nevertheless, I do not think that any man in the room feels more strongly than I do that if the great movement which is now taking place in technical education is to have a sound foundation, if it is ever to reach the heights which we hope it will attain, it is absolutely necessary that it should be carried out by—at the very least in conjunction with, and I should prefer by—those who are themselves professional members of the great professions and trades, the technical education of which is to be improved. It is perfectly absurd to suppose that men whose lives have chiefly been spent in dealing with things from a theoretical point of view should set themselves up to dictate to those whose whole lives have been spent in dealing with the matter from a practical point of view. It is only if engineers, architects, and shipbuilders will themselves take an interest in the education of the professions of which they are representatives that the Universities and Schools can hope to be of use in aiding them to carry the movement to a successful termination. It is, therefore, with the greatest possible delight that I see a great profession, the leading members of which are gathered here this evening, taking up the whole question of education in architecture from a practical point of view. The ultimate success of any such scheme must depend upon you, and you alone; and if the organised educational bodies can give you any help in the matter I hope you will understand that we do not in any way attempt to dictate, but that we look upon it as an honour to be asked to help a great profession if our knowledge of teaching and of science can be of any use. May I, however, say that I for one regard it as a matter of importance that the Universities (and for the moment I will speak only of the Universities in great centres of population) should not stand aside and merely look on while these movements are going on all around us? There is, I know, an idea abroad that a University is a body which regards itself with the utmost complacency, and is prepared to lay down rules and regulations for the instruction of everybody in everything. I hope that what I have already said will show you that there are some amongst us at all events who do not accept that definition; because, on the other hand, I should like you to remember that, after all, it is a matter of importance that young men of different professions, young men aiming at different *rôles* in life, should, as far as possible and within reasonable limits, be brought up side by side. It is not a good thing that the members of any individual profession should become a mere caste—that they should be educated from the first apart from all others who are interested, or likely to be interested, in other things. As an Oxford man, I may say that a great part of the good we obtained in those old days in Oxford was gathered, not merely in the class-rooms or from the beautiful surroundings of the University, but from the friction between mind and mind, from the mutual converse of able undergraduates who had different aims and objects in life. Something of this sort ought to be attained in any great scheme of education; and I therefore hope that in carrying out your plans you will do what you can to place the young architect, not merely in a separate Architectural School, not merely in an architect's office, but that when possible, and where it is practicable, some part of his education shall be taken in an institution where he can mix with others who are following, or intending to follow, different professions. This, I think, can be attained, and perhaps can only be attained, by co-operation with the Universities; and I sincerely hope that the University of London in future may be able to assist in the schemes which you have been so ably drawing up, and that we may be able to carry out within our own Colleges some part of the scheme which you are now laying down. You will understand that I recognise that it is for you to say what is necessary for an architect, and that it is for us to follow; but at the same time I do think that the Universities may be able to do something, both in the way of providing a certain substratum of education which is necessary for a man to reach the top of any profession, and also to provide the opportunity of mingling between undergraduates whose education is of different types. May I say that I heard with great pleasure what Mr. Blomfield said in his interpretation of the word "uniform"? I confess when I first came across that word I was a little doubtful what it meant. I should very much regret it if you attempted to issue a mandate to the world that all architects should be brought up on an absolutely uniform system; that the same course was to be followed in a municipal technical school and in a University, and that there was to be no possible divergence, either to the right hand or to the left; that more or less general culture was not to be included; that every detail of the course was to be mapped out as rigidly as every detail of a route of railway. This, I take it, however, is not to be the meaning, but that you will leave room for initiative; that you will leave room for reform; that you will leave room for gradually raising your system to something greater than you at present imagine. If this is so—and I gather from Mr. Blomfield that it is so—I can only say that I am most heartily with you, and that since I came into this room the last doubt left upon my mind as to the feasibility and practicability of your course has been wiped away. May I then hope, without attempting to lay down any scheme, that you will regard the University, not as a rival, but as a friend in these matters? May I hope that our own Board of Architecture may sometimes ask you to advise in the matters on which you are so competent to speak? We have been proud to have your late President, Sir Aston Webb, as the Chairman of our Board of Architecture, and I think you will agree that we have sought for inspiration at the fount. I sincerely hope that since the work of the University of London has been specially laid down to be that of co-ordinating the higher education in London, and since I am day by day, and almost night by night, spending my whole time in trying to contrive schemes by which the wastage which is so large a characteristic of London education in the past may be done away with—so that instead of doing a thing badly by two people we may get one man to do it well—I may add that whatever mechanism may bind us together, or however much we may be separate in our working, I hope you will realise that you and we are working side by side with one hope and desire, namely, to co-ordinate education; that we of the University recognise and sympathise with the desire of a great profession to make its education worthy of itself and to produce, as I understand from Mr. Blomfield, a new epoch in the history of architecture in this country, in which it shall cease to be the mere student of what I may call, without offence, dead forms, and become a profession more firmly founded than heretofore on the great root principles of construction.

Sir ASTON WEBB, R.A., *Past President*, in seconding the vote of thanks, said he did not propose to say anything that evening on the subject brought before them, partly because he found himself entirely in agreement with Mr. Blomfield. It had been his good fortune for some time to work with Mr. Blomfield upon this matter, and he was only saying what all the Board felt, that they were very much indebted to him and also to Mr. Slater, who had acted as joint honorary secretary to the Board of Architectural Education, for the enormous amount of time and ability they had devoted to this work. They would all agree that it was a very proper and a very fortunate thing that at this stage they should have had Mr. Blomfield to explain to members of the Institute the position to which they had been able to bring the subject. Architectural education was a matter which architects, of whatever school of thought, might unite and work together upon for the advancement of their art. They had only one object—viz. that those who came after them might have better opportunities of acquiring knowledge in architectural matters than they themselves had had. They all felt enormously the great disadvantages under which they had carried on their work in their earlier years, and were sincerely anxious that in the future those difficulties and disadvantages should be swept away. Architecture at the present day was an art difficult enough and complex enough for anybody to undertake, and the least they could do was to try and remove the unnecessary difficulties which they themselves had experienced in their younger days. They would, he thought, be much encouraged by the kind words of Sir Arthur Rücker, and when they came to the detailed system of education would appreciate very highly the assistance he had so kindly foreshadowed of the London University. As Mr. Blomfield had said, they were attempting no cast-iron scheme. They should probably find, if the scheme were carried out, that it was capable of improvement, and therefore it was laid down as a tentative scheme which could be modified as experience required. He seconded most cordially the vote of thanks. He was in a position to know perhaps more than most how very much their thanks were due both to Mr. Blomfield and to Mr. Slater, and especially on that occasion to Mr. Blomfield for the excellent *résumé* of the work which he had brought before them.

Mr. H. HEATHCOTE STATHAM [*F.*] said he was so very much in agreement with Mr. Blomfield's Paper—he was happy to say more in agreement with it than he quite expected to be—that there was not so much to say in the way of discussion. But there were one or two points on which he should like to make a remark in regard to what he or some other gentleman partially agreement by the President of the Royal Institute of British Architects, whose respective decisions shall be final."

The Sixth International Congress of Architects.

As has been previously announced in the JOURNAL, the Sixth International Congress of Architects, under the high protection of H.M. the King of Spain and under the auspices of the Spanish Government, will be held in Madrid from Wednesday the 6th of April to the evening of Wednesday the 13th, when the farewell banquet will take place.

The Congress will sit to discuss the various questions they have before them on the 6th, 7th, 9th, 11th and 13th April. The 8th and 12th will be devoted to excursions to Toledo, Alcalá and Guadalajara, and to the various buildings of interest in Madrid, where an Exhibition of the Monumental Art of Spain will be in progress.

Subscriptions (£1 as *membre adhérent*) can be paid until the opening of the Congress; but in order to facilitate matters, it would be well if members thinking of joining the Congress would send their subscriptions as soon as possible to the Secretary of the Executive Commission, Señor Luis M. Cabello y Lapiedra, Alcalá, 11, Academia de San Fernando, Madrid, so as to obtain their cards of identity and programmes before their departure from London. These cards of identity serve as vouchers, available from the 15th March to the 5th May, entitling the holders to a reduction of 50 per cent. on fares on Spanish and Portuguese railways, and 33 per cent. on those of the Compagnie de Navigation Transatlantique. The latest advices from the Secretariat state that there will be a reduction of 50 per cent. granted by the Compagnies Générales des Chemins de Fer de France.

The Secretary of the Institute will be happy to supply further information concerning the Congress, to which the Council are sending delegates as representatives of the Institute.

The French School at Athens.

M. Holleaux has been appointed Director of the French School at Athens in succession to M. Homolle [*Hon. Corr. M.*], now Director of the French National Museums. M. Holleaux, who is an old member of the School, was Professor at the Faculty of Letters, Lyons, having charge of the courses on Greek and Roman Antiquities.

NOTES, QUERIES, ETC.

L.C.C. By-laws requiring Deposit of Duplicate Plans of Drainage System [p. 209].

From HENRY LOVEGROVE [*A.*]—

I am pleased to see that Mr. E. T. Hall has called attention (on page 211) to a very real grievance of the building public. In my large district I hear much grumbling, as no purpose can be served by the deposit of drawings, and it is unfair to ask an architect, at the cost of his client, to send a complete set of plans for, say, a large factory, because it has been decided to add two new w.c.'s.

In the last paragraph of his letter Mr. Hall has well described all that is necessary for an application, and the mistake in the wording of the By-laws should be amended forthwith.

Sir John Vanbrugh [p. 213].

From GILBERT H. LOVEGROVE (*Student*)—

May I, as one who has studied the life of the eminent architect, add a few remarks to Mr. Oglesby's interesting Paper on Sir John Vanbrugh.

In justice to Vanbrugh (and to Swift) Mr. Oglesby should have continued his quotation from the poem on "Vanbrugh's house" as far as

> "'tis own'd by all
> Thou art well contrived, though thou art small."

The theatre in the Haymarket was not the first of his architectural works, the foundation-stone having been laid, on the 9th April 1705, by the Countess of Sutherland, daughter of the Duke of Marlborough, who was popularly known as "the little Whig."

A great part of the podium of the Clarendon Buildings, Oxford, which must have given considerable dignity to the design, has now been removed; Kneller Hall, Hounslow, was refronted by Hardwick, and, having been altered by other architects, is now quite unlike the design as originally carried out.

The writing of humorous epitaphs was a favourite amusement for the wits of the time, as witness that on Oliver Goldsmith by Garrick, and, further, there is no proof that Dr. Evans wrote his couplets after Vanbrugh's death.

I believe no biographer has noted that Sir John was (like Sir Christopher Wren) a Freemason. In the list of members of the lodge "Sunn in Chester," "as by account deliver'd at a quarterly communication held 27th November 1725," occurs the name of "Captn. John Vanberg."

Those interested in Vanbrugh's works (dramatic or architectural) will regret that Vanbrugh House, Westcombe Park Road, Blackheath, is now being destroyed, and Vanbrugh Castle, Maze Hill, is threatened. Both of these were apparently for his own occupation, their grounds being connected by a subterranean passage.

Treatment of Sewage by Bacteria.

In a Paper on this subject read at Leeds on the 22nd February Mr. W. J. Dibdin said that the difficulty experienced with the ordinary coarse or "first contact" bed in those cases where the crude sewage was turned directly on to it was that the interstices between the particles of coke or clinker, &c., became filled with the finely divided matter in the sewage and carbonaceous residuum from the bacterial action on the organic matters. The grit or detritus tank and the septic tank left a quantity of sewage sludge to be disposed of. In discussing the question as to what could be done either to prevent the putrefactive action in the tank, whether "septic" or "grit," or to increase the efficiency of the coarse or first contact bed, reference was made to the reports of the Manchester and Leeds Corporations, and Mr. Dibdin stated that in the case of a coarse bed filled with coke or clinker, &c., there were a number of solid particles presenting only an outer surface, the interior of the particles occupying space to no purpose. It occurred to him that this interior space could be utilised by the employment of a material of hollow form, so that it would present an interior as well as an exterior surface on which the bacteria could grow. After trying tiles, he made an experiment at Devizes, in which waste slate débris was used. The slates were supported about one inch apart by small slate blocks. This arrangement gave no less than 80 per cent. of water capacity to the beds, thereby doubling their effective working capacity as compared with coke, &c. In fact, the bed at Devizes was exactly one-half the size of the fine bed into which it discharged, with the result that the cost of construction of an installation was reduced 50 per cent. By the use of slates the chief causes of loss of capacity were overcome. The growth of organisms would take place on both surfaces of the slates, and would not choke the spaces between, as in the case of coke, &c. The facility of cleaning out the slate beds, it was stated, greatly reduced the cost as compared with clinker beds. Slate contact beds would be found not only the most economical but far and away the best means of destroying the foul mass of animal and vegetable matter called sludge. Slate, too, was inert, and formed an admirable home for the bacteria.

ALLIED SOCIETIES.

SHEFFIELD SOCIETY OF ARCHITECTS.

Evolution of the Manufacturer in Art.

The ordinary monthly meeting of the Sheffield Society of Architects and Surveyors was held on the 11th February in the Lecture Hall of the Literary and Philosophical Society, Leopold Street. Amongst those present were Messrs. T. Winder (in the chair), E. M. Gibbs, J. Smith, C. B. Flockton, J. R. Wigfull, H. L. Paterson, T. Swaffield Brown, W. J. Hale, C. F. Innocent, Horace Wilson, W. G. Buck, H. I. Porter, C. Green, W. C. Fenton (Hon. Sec.), and others. Letters of apology for absence were received from Messrs. R. W. Fowler and C. M. Hadfield.

Mr. W. Gilbert (of the Bromsgrove Guild of Applied Art) gave a lecture on "Evolution of the Manufacturer in Art." The lecturer traced the origin of the guilds connected with craft from the earliest period, and referred to the beautiful work of the mediæval craftsman, when there was no division of labour, and when work was the pleasure of his existence from the time of his apprenticeship until he became full member of the craft. He also showed how great historical occurrences affected the guilds by developing art workshops and thus divorcing the artist and craftsman. The influence of Italian "commercial" artists during the Renaissance was next referred to at some length, and the various phases of craft work up to the nineteenth century. The institution of classes for designing in this country was also mentioned. In 1851 there were twenty-two such classes in existence. The influence of the Great Exhibition of that year on craftsmanship was described by Mr. Gilbert. The conditions which alone would produce good work in art classes, he thought, were that they should not be municipal factories, competing in any way with local manufacturers, and that they should not be the home of fads, but the home of thought. The lecturer commended individualism in art. Craftsmen owed much to architects. He alluded to the fine work of the late J. D. Sedding, especially at the Church of the Holy Trinity, Chelsea, where his work was combined with the craftsmanship of Onslow Ford, and others. The lecturer, in conclusion, pleaded for greater association between good workers in the production of good work, and especially between architects and the different craftsmen employed in building.

An interesting discussion followed, and on the motion of Mr. T. Swaffield Brown, seconded by Mr. Horace Wilson, and supported by Messrs. W. J. Hale, J. R. Wigfull, C. Green, E. M. Gibbs, W. C. Fenton, and W. F. Smith, a hearty vote of thanks was accorded the lecturer.

LEEDS AND YORKSHIRE SOCIETY.

Professor Pite and Mr. Seth-Smith on Registration: Discussion.

The sixth general sessional meeting of the above society was held on February 11th, Mr. Butler Wilson [*F.*], president, in the chair. A large gathering of members assembled to hear Papers on Registration as affecting architecture suggested the lines on which architecture might usefully be taught, but it ought not to tie the teacher or pupil down absolutely to one particular curriculum. At South Kensington the Council for Art had been lately producing a syllabus which they were sending out all round the country to every school; but it took the form of a suggestion, and different art schools were left a certain latitude. Of course they wanted more latitude in schools where one particular craft was to be taught; architecture, for instance. But this syllabus they hoped would be useful, and would give the right direction and the right principles on which they thought art ought to be taught; and in that way it would be more useful than if it were a rigid rule to which all were obliged to conform. Then there was the question of visitors. Part of the scheme which they had been elaborating at South Kensington for the different art schools throughout the country consisted in this, that they hoped they should be able to have visitors who would go round and help the masters with suggestions, and so on. He did not know whether it would be possible for our scheme to be brought in any way in relation with that. There would be amongst the visitors, if they succeeded in getting the Government to approve of what they had suggested, some who would be architects, to go and look after the architectural teaching in the different art schools throughout the country; and it was quite possible that we might put ourselves in some way in relation to that which would be very helpful, and might, perhaps, avoid some clashing of two different systems. The workshops were, of course, a difficulty. Whether it would be possible to arrange with builders to let the students have the run of their workshops he did not know. To establish workshops of their own would be expensive, and only practicable in the large towns; in the more remote places it would be very difficult to give the students the same facilities. A great deal of good would be got, he thought, by their alliance with other artists; if painters and sculptors and architects could mix more together it would be an admirable thing for all of them. That every sculptor should learn a little architecture would do him a great deal of good; and were architects to look beyond their own craft to the decorative crafts, in which they were probably to be allied in the future, it would give them wider ideas; they would look beyond their own T squares and see that there were modes of decoration in which they would be glad to have the co-operation of their brother artists from the bottom; and it would be much better that they should associate with them in their respective schools. Everything, after all, depended upon the students. They might provide the best education in the world, but it depended upon the men, after all. He himself believed a great deal in the picking-up system. The most that education could do was to make it easy for men to pick up knowledge, to put opportunities and suggestions in their way, and help them to remove difficulties. Beyond that he had not very much faith in any system of education. We may provide the fount, but it was impossible to say whether, when the wild asses come there, they will quench their thirst at it.

Mr. JOHN SLATER, B.A. [*F.*], said that, as perhaps, with the exception of Sir Aston Webb, he knew more than anyone else of the immense amount of time Mr. Reginald Blomfield had given to this subject, he should like to express his own thanks, and he was sure the thanks of the Meeting also, for the immense trouble he had taken on the subject. With regard to what had fallen from Mr. Statham as to the French system of education, he could not help thinking that the great drawback of the French system of education was that it stereotyped the methods of the people who followed it. He remembered someone remarking in that room that an eminent French architect on a visit to this country had inspected a number of the drawings and sketches done by young men here, and he said that with all their system of education in France they could never hope to arrive at such originality as was shown in the work he had inspected. He could not help feeling that there was a danger in any system of education of its stereotyping the system. That was a thing they should avoid, and Mr. Blomfield had fully explained that there was no uniformity in that sense that they were advocating in their scheme of education. He should like to say how very thoroughly he endorsed what fell from Sir Arthur Rücker as to the desirability of any student who intended to practise architecture having an all-round education and mixing with others—not only with those with whom he would work in after life. He felt certain that the better a man was on all sides (granting, of course, his genius and his capacity for taking pains), the better architect would he be.

Mr. MAURICE B. ADAMS [*F.*] said he should like to make one or two remarks, as he considered this was a very memorable occasion. During his whole connection with the Institute things never appeared to him to be so hopeful as they were at the present moment. When they got men like Mr. Blomfield and Mr. Jackson coming there to co-operate with them in this endeavour which they were making for improving the education of their craft he was sure that the future was luminous with hopefulness. When they turned to the National College of Art and saw the great improvement that had taken place in the work of the students, as was demonstrated in the recent exhibition held there, he, for one, saw reason for great hopefulness. The drawings and designs to which he referred were exhibited on the other side of the way in an iron building at the rear of the Natural

History Museum, and they made a most interesting and creditable exhibition. It was, he assumed, to the schools of art and polytechnics throughout the country that those who were alluded to by Mr. Jackson must turn for that degree of elementary instruction in the teaching of architecture which was all they could hope for. Architects, as a professional body, could not be expected to teach builders the art of architecture; they had to take a more limited view and try to train their own students as professional architects. It had been argued that professional architects were not wanted. For his own part he did not sympathise with that view, naturally so; but he did think there was a great deal in what Mr. Jackson had said. Having himself taught in a school of art many years ago, he fully recognised how deplorable the current teaching of architecture then was. But in that respect matters had very materially improved, as would be seen at the more recent of the National Competition Exhibitions which were held year by year, and he had on several occasions previously acted as an Examiner for some of the subjects in these National Competitions. It was true that a great many of those students who were most successful in the architectural department in these particular competitions were those who had competed for the prizes of the Institute and the Royal Academy, and very often the prize-winners were to be seen carrying off prizes with drawings which had already won prizes elsewhere. Whether that was altogether desirable he could not say; but he had often thought that a drawing which had gained, say, the Soane Medallion or other prizes at the Institute should be restricted from competing for the medals at South Kensington. There was no doubt, however, that the work in applied design had very greatly improved. Then, again, if they went down to Liverpool, they heard of the immense good that Professor Simpson had done there; that he had raised the whole status of architectural pupils in the town. He himself had been there recently, and had heard first-hand testimony of the great advantages to architecture that Professor Simpson's influence had brought about in that city. But what impressed him most of all was that their society, the R I.B.A., which did not profess, and never had professed, to be a teaching body, was seriously taking up that which competition abroad was forcing upon them, that they must make themselves (whether they agreed with the French system, or the German system, or the American system, or not) more competent in the craft they professed. It was the urgent need of co-operation amongst the whole profession that he wished to emphasise, because his idea was that the majority of architects did not take that interest in this question which it was imperative they should do. They must have co-operation all over the country, or they should never succeed. If any words he could say should impress this necessity upon the architects throughout the provinces, they would not have been in vain.

Mr. E. M. GIBBS [*F.*] (of Sheffield) said that he felt sure that this scheme would be most cordially received by the architects in the provinces and carefully considered by them. He might mention that he and two of his friends had thought it of sufficient interest to come up specially to hear all about it. He had had the privilege of reading an advance copy of the Paper on the way up and carefully studying it, and had been very much impressed by it. The Paper, however, was so comprehensive in its scope, while at the same time so lucid and full of detail, that it would be impossible for them to discuss it fully at that meeting. But there was one point which he thought had been overlooked, and it was so important that he hoped he might be excused for mentioning it, and that was, that in the syllabus there was no provision for elementary art training. Mr. Blomfield had said that the art of architecture is translating construction into beautiful form. One of the first things, therefore, that a young architect ought to learn was to appreciate beauty of line, form, and colour by drawing in light and shade, and by the study of colour. Elementary teaching of that kind would go well with the others, and it should, he thought, be put in as a sixth subject.

Mr. G. A. T. MIDDLETON [*A.*] thought they were all agreed that the scheme which had been put before them was one of very great magnitude. Perhaps one of its greatest and best features was that it was not intended to centralise all architectural training in London; its great object appeared to be to distribute it at least amongst the great provincial centres. There must, however, always be a class of students who were not even privileged in that way; many whose parents lived in small country towns, out of reach of the centres where the Architectural Schools were located, unless they were prepared to spend more money upon their sons' architectural training than they could afford. Those students would in the future, as hitherto, be articled in offices in small country places. How were these to be reached? This was a great problem, and one which this scheme at present did not pretend to deal with; but he ventured to suggest it as a matter for future consideration, that it might well be dealt with, as the means of doing so were not difficult. He referred to teaching by correspondence. Correspondence teaching had hitherto been left in the hands of private individuals. He for one had had twenty years' experience of it, and he could assure them that it was a successful system; but it could not do, in the hands of a few private men, what it could do if it were properly organised from great centres. He should like that matter to be taken deeply and seriously into consideration as a way of teaching those who lived in out-of-the-way places, and for the continuation of the studies of those who had their first two years, as was suggested, in the great central schools, and afterwards had to go to these less central towns.

Mr. H. C. CORLETTE [*A.*] said it had been a great pleasure to him to listen to Mr. Blomfield's Paper, and he hoped the future would see the scheme satisfactorily unravelled and in practical realisation. The flexibility of the syllabus would be a difficult thing to arrange; but with the support of the ability which had framed this great educational scheme, there seemed every promise that it would be most admirably dealt with. He thought that the period after the student had done his school work would be better lengthened to three years. Two years would be rather a short time for a man to pick up very much in an office, especially if he was going to spend part of that two years adding to the work he had already done in the schools. He assumed that some of that work could be done in the day and not at night, because if a man was to be at work too much at night he would not be fresh enough for creative work in the daytime. With regard to the syllabus, Mr. Blomfield mentioned the study of old buildings. It appeared to him that if the study of old buildings was undertaken a little more under direction than had been the case in the past, it might be more advantageous to students. If, for instance, a student was going to take up a certain period of architectural development (he would not call it "style"—they had done with that), would it not be advisable if he selected a particular building and made a thorough study of that building from foundation to roof—that is to say, study the reason for all the different variations of the design in its plan and its structure? And after he had thoroughly studied it, not for a few weeks only, but for a year or a couple of years, if he wrote a thesis on the subject describing its plan and construction, and something of the history of its development, that would lead him to understand the artistic and general history of the period in which the building was erected. This would add interest to his work as an artist, and it would not necessarily make him merely an archæologist. With regard to drawing, it might be better if they, as future architects, were taught to look upon drawing, not as a thing that was an end in itself, but more as a hard craft that had to be learned as a means of explaining ideas to others; not a study of shadows and things of that sort from the painter's point of view, but as a craft, just as a sculptor studies when he works in clay. In the suggestion that the system should be uniform, he understood Mr. Blomfield to mean that in aim and in principle there should be uniformity, but that there should be great diversity of method in the teaching to be adopted in the various centres. He hoped that those centres would not be only provincial. In the case of architecture they were dealing with a question of education which must be considered as an Imperial affair, Imperial in this sense, that they must have regard for Australia and Canada in connection with their schemes of architectural development. Especially in the case of Australia he knew that there was a great desire on the part of men out there to be more in touch with the things of art in the Old World than they were at present. In Australia they had none of the old buildings to study that we have in the mother country; and whether it is possible to open up communication with our fellow-students there and let them see, by means of models or by drawings, what had been done in the past, and what was being done in the present, was a question which, perhaps, might be considered by some responsible committee.

Mr. H. G. IBBERSON [*F.*], in associating himself with the vote of thanks, said he should like to say how glad he was in hearing the Paper and the discussion to find that there was so much said about instruction and so little about examination. When the necessity for examination was made unduly prominent there was a tendency for the pupil to regard it as an end rather than a means, and to make harmful use of the professional crammer. Instruction should make a man able to act with intelligence in unfamiliar circumstances. Apparently even that given at our older Universities fails occasionally, for the late Bishop Creighton stated that he was "appalled" to find how little value he attached to academic honours when making appointments in the diocese of Peterborough, and that the most capable clergyman he had was only a Dublin "passman." He also felt that in education there was a danger that the instructor should force his mind and his ideas with too great vigour on the pupil, and so destroy that individuality which was one of the most valuable things in connection with a profession such as architecture. Passing from the general to the particular, he hoped that in any new scheme there would be an opportunity for pupils to be taught what might be described as "the gentle art of condemning materials"! He remembered at his examination a little table with an estimable gentleman on one side of it and various specimens of material on the top; but he did not remember that any of the materials were bad materials. He had since found that it was more difficult to distinguish between good deal and bad deal than it was to be able to distinguish between deal and oak! He once, when calling upon some friends of his who were timber merchants, was shown a letter to this effect: "Dear Sirs,—The timber which you sent to such-and-such a job, brand XX, three owls, and a Y, has not been deemed satisfactory by the architect, and we think brand XX, two owls, and a T, which is brighter in colour, would be more what he likes. Kindly send the same, and"—and this is the more important part—"when you send in your account to us make the necessary deduction"!

Mr. EDMUND WOODTHORPE, M.A. [*F.*], said he was very pleased indeed to hear Sir Arthur

Rücker say that the University of London was prepared to do all it could to help on architectural education. He had always thought that what they wanted was another Cecil Rhodes who would found Chairs of Architecture at the older Universities. They should also, if possible, have a final school in architecture. Architecture was far more important, he considered, and probably they all considered, than medicine, even, for the health and happiness of the population; but architecture seemed to be absolutely neglected by the public, so far as education goes. At nearly all the public schools, and even at the elementary schools, drawing is almost absolutely neglected. He had been at a public school and had learnt drawing all the time; but the drawing was practically untaught—it was merely mechanical work of little good to anyone. The drawing also had to be done in the time that would otherwise have been devoted to football or cricket, and very few cared about giving up that time. One point that Mr. Blomfield did not allude to, and which he (the speaker) thought was perhaps the best education that an architect could get in general construction and the carrying out of building, was acting as clerk of the works. At the present time he believed it was not so much in vogue for the young architect to act as clerk of the works on buildings, after he was out of his articles, as it used to be. He was certain, however, that the young architect picked up, and was likely to pick up, more practical knowledge in that way than in almost any other. With regard to this scheme of education he remembered that the Papers on Education read at the Conference of Architects in 1887 practically embraced a great deal of what had been put forward that evening. The Papers he referred to were by men of wide practical experience and knowledge, gained in other countries as well as in England, on this subject, and were read at the conference presided over by the late Mr. Arthur Cates, whom he regarded as the pioneer of architectural education, for he had done more in this matter than anyone in recent days. He hoped sincerely that the outcome of this work would be more prolific of good than that conference was. Much good had been done at Liverpool by Professor Simpson and by others in the various schools, and he confessed he was rather surprised to hear Mr. Jackson say that whatever they did with the students he was always doubtful of the result. He (the speaker) was not at all doubtful of the result, provided the final test was by examination. He did not at all agree with what the last speaker had said about examination. Probably there are about 10 per cent. of all the architects and members of other professions who succeed and get to the top of the tree who do not believe in examinations, who will work without examinations, who will read and remember what they read without examinations; but the other 90 per cent., unless they have got some examination to work up to, will never really get into their heads and remember what they have read. The great idea of education is to put into one's head properly everything that one ought to know; and working up for an examination aids the average student in a way that desultory reading on his own account would never do. What the young architect wants is to know what books he can refer to on any particular subject. There is so much to learn in the present day, with so many new materials and methods constantly coming into vogue, that one cannot possibly remember them all. He was very glad to support the vote of thanks to Mr. Blomfield for the great trouble he had taken in bringing this matter before them.

THE PRESIDENT, in putting the vote of thanks, said they had had a good practical Paper from Mr. Blomfield, for which they were exceedingly obliged to him. He had not only put before them, in a clear and concise manner, their past faults, but he had laid down the lines on which architectural education must be developed in future. Of course, as they might easily expect, there would be a great diversity of opinion on details; these variations depended upon temperament and outlook and the general experience of the architect himself. But while uniformity of principle was important, it was not essential that the details should be altogether the same; they might vary according to the needs and necessities of the districts where the schools were located. The remarks that they had heard that evening had very much cleared the ground, and when the scheme of the Architectural Board came before them they should be ready to accept it generally, to the advantage of architectural education.

MR. BLOMFIELD, in responding, said he had been really bewildered by the number of excellent suggestions which had been poured out since he sat down. He did not follow them all entirely—as, for instance, Mr. Woodthorpe's suggestion that the Universities should take up this question of architectural education, and, as he understood, establish an Honours School. It seemed to him a little impracticable, especially as architecture was an extremely practical affair, dealing with bricks and mortar. Mr. Woodthorpe's other point, that the pupil should act as clerk of the works, was all very well for the young student, but uncommonly bad for the client. If they sent a young man who scarcely knew brick from stone to overlook the builder, he did not think it was fair to the client, and he did not believe the pupil would learn unless he was under proper guidance. Various references had been made very kindly to his share in the proposed educational scheme. He should like to put that right at once. His colleague, Mr. Slater, and himself had been secretaries to the Board, and this report was the outcome of the deliberations of the Board, and was put together as the result of suggestions made by members of the Board; therefore it was the collective report of many gentlemen who had given a great deal of time and trouble to this matter. He need hardly say in that room what an immense debt they owed to Sir Aston Webb as Chairman: his tact, patience, consideration and sympathy with all of them, and his sagacity in guiding their deliberations, had been admirable. He felt that this tribute was due to Sir Aston. It would be impossible for him to deal with many of the points which had been raised, but there were one or two fixed in his mind. Mr. Maurice Adams had made some very excellent remarks, though he could not quite agree with him about the result of the art students' competitions. He had himself acted as one of the Examiners in the National Art Competitions at South Kensington, and his experience differed from Mr. Adams's observations. The students had seemed to him and to his colleagues to fail precisely in those points that they were aiming at—the practical grasp of architecture. They would make beautiful fronts and façades, but they did not seem to have any grasp of what it all meant. They wanted to make them see that. He heartily endorsed the tribute to Professor Simpson's work. He had done admirable work in Liverpool, and he hoped he would continue to do it in London. Mr. Statham had made some interesting remarks in regard to French architecture. He (Mr. Blomfield) yielded to nobody in his admiration for French architecture; but he did not quite agree with Mr. Statham on this particular point—the amount of time occupied in their training with immensely elaborate draughtsmanship; it was clear that the student must devote a great deal of time to it, which might be devoted to other things.

Mr. STATHAM: I was not defending it; I only said there was a fine side to it.

Mr. BLOMFIELD: But that fine side might be got without all that elaborate pains and trouble; it seemed on all fours with those stipple drawings from the antique that one used to make with great care and pains and which were no use to one at all when they were done. Mr. Jackson had hit the nail on the head in one very important point: that is, that architecture, after all, was founded on reason. If it was not a matter based on the facts of existence and the practical handling of realities, it would have no serious touch with humanity at all. That was the one point they were attacking. They wanted to train the student to get rid of all shibboleths and conventions. They did not want him to look upon any particular style or method as sacrosanct, but to think for himself and to use his materials as a free and intelligent person; of course with full knowledge of what had been done in the past—they could not do without that. They must all be very grateful to Sir Arthur Rücker for the generous welcome he had extended to the scheme on his side. It was a most encouraging thing that the educational authorities should feel that we practical men were doing our best, and that they on their side should extend their hands to us and invite us to co-operate with them. He had endeavoured to make it clear that the uniformity for which he contended was not uniformity of detail, but uniformity of point of view. They wanted to get all the students to be working from the same point of view, to bring about the same general colour in the scheme, but still leaving them their individuality and freedom of handling. He would not detain them longer. The general conclusion he had come to in listening to the various speeches which had been made was the very welcome one that there was a great deal more agreement amongst them all, when they took the trouble to find it out, than might be supposed.

9, Conduit Street, London, W., *25th Feb.* 1905.

CHRONICLE.

Congratulations to Mr. Reginald Blomfield, A.R.A.

At the General Meeting last Monday, prior to the delivery of the Paper printed on foregoing pages, the President took the opportunity of tendering the congratulations of the Institute to Mr. Reginald Blomfield on his election as Associate of the Royal Academy. They all admired Mr. Blomfield, he said, and recognised the zeal which he had displayed in connection with architectural education, as evidenced by his attendance that evening to give them the benefit of his views on the subject. Mr. Blomfield, in responding, said he thanked the members very heartily for their congratulations. The honour which had been paid him, he thought, was in his humble person an honour to their calling, and in that way he thanked them for the very kind sympathy they had shown him in the matter.

London Building Acts (Amendment).

The following is a list of the bodies who have lodged petitions against the London Building Acts Amendment Bill praying to be heard by Counsel. The Institute Petition was printed in the last number of the Journal [pp. 227–30] :

1. London and India Docks Company; 2. Institution of Civil Engineers; 3. Metropolitan Borough of Stepney; 4. Ironmongers' Company; 5. Duke of Westminster; 6. Merchant Taylors' Company; 7. Ecclesiastical Commissioners for England; 8. Paddington Corporation; 9. Wandsworth Borough Council; 10. Hammersmith Borough Council; 11. Lord Llangattock and Others; 12. Edward Yates; 13. Haberdashers' Company and Others; 14. Hampstead Borough Council; 15. Governors of Bridewell and Bethlem Hospitals; 16. Salters' Company; 17. Skinners' Company; 18. Royal Institute of British Architects; 19. District Surveyors' Association (Incorporated), London; 20. Goldsmiths' Company; 21. Mercers' Company; 22. Fishmongers' Company; 23. Vintners' Company; 24. Improved Industrial Dwellings Company; 25. Surrey Commercial Dock Company; 26. Grocers' Company; 27. Bethnal Green Borough Council; 28. Auctioneers' Institute of the United Kingdom; 29. Westminster Electric Supply Corporation; 30. Association for the Protection of Property Owners; 31. Surveyors' Institution; 32. Metropolitan Water Board; 33. Holborn Borough Council; 34. Hackney Borough Council; 35. Clothworkers' Company; 36. London Chamber of Commerce (Incorporated); 37. Camberwell Borough Council; 38. Honourable Society of Lincoln's Inn; 39. Honourable Society of the Middle Temple; 40. Honourable Society of the Inner Temple; 41. Trustees and Managers of the Stock Exchange; 42. Railway Companies owning railways and lands within the Administrative County of London; 43. Westminster City Council; 44. Islington Borough Council; 45. Institute of Builders; 46. Gordon Hotels; 47. Stoke Newington Borough Council; 48. Fulham Borough Council; 49. Institution of Electrical Engineers; 50. Woolwich Borough Council; 51. Companies supplying Electrical Energy within the Administrative County of London; 52. General Storekeepers, Drapers, and Others as Owners, &c.; 53. Gas Light and Coke South Metropolitan and Commercial Gas Companies; 54. N. M. Rothschild and Sons and other Banking and Mercantile Houses; 55. Kensington Borough Council; 56. National Telephone Company; 57. Shoreditch Borough Council; 58. Lambeth Borough Council; 59. Wharfingers' Association; 60. Association Owners of City Properties and Others; 61. Corporation of London; 62. Associated Landowners and Others; 63. St. Pancras Borough Council.

President Roosevelt on Architecture.

The President of the United States was the guest of the American Institute of Architects at their banquet on the 11th January. His address on the occasion was so admirable that members of the R.I.B.A. will be glad to preserve it in their Journal. The *American Architect* reports it as follows :—

It is a great pleasure to have the chance of coming here this evening and saying a word of greeting to a body of men who are engaged in doing work for this Republic which is to count, not merely in the present generation, but during the lifetimes of many generations to come. We hear a great deal said about true Americanism. Now the real American, the American whom it is worth while to call such, is the man whose belief in and work for America are not merely for the America of to-day, but for the America of the future.

It is a comparatively easy thing to do work when the reward is to come in the present; but every great nation that has ever existed on this globe has been great because its sons had in them the capacity to work for the well-being of generations yet unborn. Such a spirit is peculiarly necessary when the work that we desire to have done is essentially work of a non-remunerative type, non-remunerative in more than one way: non-remunerative in money and, it may be, in fame. We do not know the names of the architects and builders of the great cathedrals whose magnificent bodies are an heirloom to civilisation. We do not know the names of the builders of the great majority of the works to which every man with any aspiration after beauty naturally turns when he thinks of the past. We owe that beauty, we owe the elevation of thought, of mind and soul that come with association and belief in it, to the fact that there were a sufficient number of men who worked in the spirit that Ruskin prayed in—the spirit of doing work, not for the sake of the fame, but for the sake of the work itself.

There are things in a nation's life more important than beauty, but beauty is very important. And in this nation of ours, while there is very much in which we have succeeded marvellously, I do not think that, if we looked dispassionately, we will say that beauty has been exactly the strong point. It rests largely with gatherings such as this, with the note that is set by such men as those I am addressing to-night, to determine whether or not this shall be true of the future.

A very large percentage of the durable work, the work which is lasting, must be done by the Government. Great buildings and beautiful buildings will be erected by private subscription; but many of the grandest buildings must necessarily be erected by the Government, national, state, or municipal.

Those in control of any branch of that Government necessarily have but an ephemeral lease of power. Administration succeeds administration; congress succeeds congress; legislature succeeds legislature, and even if all of the administrations, all of the congresses, are actuated (a not necessarily probable supposition) by an artistic spirit, it would still remain true that there could not be a coherence of their work if they had to rely on themselves alone. The best thing that any administration, that any executive department of the Government, can do—and if I may venture to make any suggestion to a co-ordinate branch I would say that the best thing that any elective legislative body could do—is in these matters to surrender itself within reasonable limits to the guidance of those who really do know what they are talking about.

The only way in which we can hope to have worthy artistic work done for the nation, or for a state, or for a municipality is by having such a growth of popular sentiment as will render it incumbent upon successive administrations, successive legislative bodies, to carry out steadily a plan chosen for them, worked out for them by such a body of men as that gathered here this evening. What I have said does not mean that we shall go here in Washington, for instance, into immediate and extravagant expenditures on public buildings. All that it means is that, whenever hereafter a public building is provided for and erected, it should be erected in accordance with a carefully thought-out plan adopted long before, and that it should be not only beautiful in itself, but fitting in its relations to the whole scheme of the public buildings, the parks, the drives of the district.

Working through municipal commissions very great progress has already been made in rendering more beautiful our cities from New York to San Francisco. An incredible amount remains to be done. But a beginning has been made, and now I most earnestly hope that in the national capital a better beginning will be made than anywhere else, and that can be made only by utilising to the fullest degree the thought and the disinterested effort of the architects, the artists, the men of art who stand foremost in their professions here in the United States, and who ask no other reward save the reward of feeling that they have done their full part to make as beautiful as it should be the capital city of the great Republic.

The late John Leaning, F.S.I.

The death of Mr. John Leaning, which occurred on the 5th inst., ought not to pass without a regretful reference in this Journal, to which he was from time to time a contributor. His works on "Quantity Surveying," now in its fourth edition, "Conduct of Building Work," and "Building Specifications" are widely recognised authorities on the subjects treated; and his esteemed contributions to these columns were mainly reviews of books on these or kindred subjects. Mr. Leaning was born at Colchester in 1840, and as a young man spent some time in Australia in the office of the Surveyor to the Crown Lands at Melbourne. He returned to England in 1868 and established himself as a quantity surveyor, joining the Surveyors' Institution in 1888. He was an examiner of the City of London College and one of the original lecturers at the Architectural Association.

AN ENQUIRY INTO THE ORIGIN OF THE OFFICE AND TITLE OF "DISTRICT SURVEYOR."

By Bernard Dicksee [*F.*].

NOW that attempt is being made in the London Building Act Amendment Bill to destroy the independent statutory position of the District Surveyor, and convert him into a mere salaried officer of the County Council, thus completely altering the system under which the Building Acts of London have hitherto been administered, a retrospect of the history of the origin of the office and title of District Surveyor will, I venture to think, be of interest.

Though probably little known to the general public, the office of District Surveyor is of considerable antiquity, dating as it does from the Great Fire of London. In A.D. 1667 was passed "An Act for rebuilding the City of London" (19 Car. II., cap. 3). By section 4 of that Act the Lord Mayor, Aldermen, and Common Council of the City of London were required to appoint "one or more discreet and intelligent person or persons in the Art of Building to be the Surveyors or Supervisors to see the said rules and scantlings well and truly observed," and such Surveyors or Supervisors were required to take oath that they would properly perform their duties. This Act, which remained in force until repealed in 1772, contained, among other requirements, provisions for the separation of buildings by party-walls. By 6 Annæ, cap. 31, section 4, party-walls, as therein described, were required to be provided to all houses in London and Westminster, and within the area of the Weekly Bills of Mortality. Outside the City no Surveyor or Supervisor appears to have been appointed; there was, however, a penalty of £50 for the non-observance of the law, and possibly the common informer was relied upon to enforce it. 7 Annæ, cap. 18, amended the Act of the previous year, among other things exempting the buildings on London Bridge, but left the administration of the law as before. 11 Geo. I., cap. 28 (A.D. 1725) further amended the law, and extended it to the parishes of St. Pancras, St. Marylebone, Paddington, and Chelsea, at the same time providing rules for the rebuilding of party-walls. 33 Geo. II., cap. 31, increased the thickness of party-walls. Up to this time no procedure for enforcing the Acts outside the City can be traced, but in the next statute, 4 Geo. III., cap. 14 (A.D. 1764), it was enacted, in section 7, that master builders were to have the building, on roofing-in, surveyed by one or more surveyors, who were required to take oath before the Justices of the Peace in Westminster or Middlesex that the building had been erected in accordance with the Act. Apparently, as 19 Car. II., cap. 3, had not been repealed, the "Surveyor or Supervisor" remained in authority within the City. The 1764 Act was the first to demand the party parapet (section 3), which was required to be carried 18 inches above the roof. 6 Geo. III., cap. 27 (A.D. 1766), extended only to the City, and related to streets and party-walls.

All the above-mentioned Acts remained in force until 1772, when 12 Geo. III., cap. 73, was passed, applying to the same area as the 1725 Act, and repealing so much of the previous Acts "as relates to buildings and party-walls," but apparently, as no new rules were provided, leaving the administration as before.

This Act survived only two years, and was repealed by 14 Geo. III., cap. 78 (A.D. 1774), by section 62 of which Act the Lord Mayor and Aldermen in the City of London (the Common Council were dropped out) and the Justices of the Peace in their respective General Quarter Sessions, subject to the consent of the Secretary of State, were required to appoint the "Surveyors or Supervisors," who were to take oath to observe and enforce the Act. This was the first establishment of the District Surveyor outside the City of London. A provision in this Act worthy of note is contained in section 63, which enacted that if any builder neglected to give notice to the "Surveyor or Supervisor" he should forfeit and pay to such Surveyor treble fees. This Act was far more comprehensive than any of its predecessors: it divided buildings into seven rates, each with its own set of rules, and contained a scale of fees to be paid to the Surveyor or Supervisor according to the rate. This Act remained in force until superseded by the Metropolitan Building Act 1844 (7 & 8 Vict., cap. 84), in which the District Surveyor received his present title of "District Surveyor." By section 65 he was appointed, as in the Act of 1774, by the Lord Mayor and Aldermen and the Justices of the Peace respectively, with the consent of the Secretary of State; and by section 56 he had to be qualified by examination by a special Board of Examiners consisting of not less than three architects. Section 70 enacted that Surveyors then in office under the Act of 1774 should continue to be District Surveyors under the Act, "and every provision in this Act applicable to District Surveyors so far as relates to the exercise of the office of Surveyor and to their remuneration in that Behalf shall apply to them." The remuneration as in the previous Act was by way of fees, which varied according to the "rate" and to a certain extent the size of the building. Section 76 provided that where the District Surveyor acted professionally on a building in his own district the building was to be "surveyed by another District Surveyor."

The Metropolitan Building Act 1855 (18 & 19 Vict., cap. 122), which repealed the Act of 1844, confirmed the District Surveyors in their position, transferring the appointment of new surveyors to the newly created Metropolitan Board of Works and establishing the Royal Institute of British Architects as the examining body.

The question of the status of District Surveyors and the desirability or otherwise of making them officers of the Metropolitan Board of Works was thoroughly enquired into before a Select Committee of the House of Commons on the proposed Metropolitan Buildings and Management Bill 1874 (which never became law), when, after hearing many witnesses, the Committee decided "that with regard to District Surveyors their status should remain the same as under former Acts of Parliament."

On the creation of the London County Council, and the extinction of the Metropolitan Board of Works in 1888, the appointment of new Surveyors passed to the newly created Council, who thereupon sought to impose conditions not contemplated by the Acts upon all candidates for the office of District Surveyor, among which was an obligation not to practise as an architect or surveyor. When the present London Building Act 1894 (57 & 58 Vict., cap. 213) was before Parliament the County

Council sought to obtain parliamentary sanction to these conditions by adding to their power of appointment words to the effect that they might impose such conditions on the appointment as they might think fit. Such sanction was refused, and the words were struck out of the Bill, leaving the law in the same position as it was under the Act of 1855, which in that respect followed the Acts of 1844 and 1774.

The facts may be briefly summarised as follows:—

The office of District Surveyor has existed in the City of London since 1667, and in London outside the City since 1774.

The statutory title "District Surveyor" has existed since 1844, though evidently in use earlier.

The District Surveyor has been paid by fees calculated on the building, at least since 1774.

His right to practise as an architect or surveyor has been recognised at least since 1774, and power to restrict this right was refused by Parliament in 1874, and again in 1894.

The status of the District Surveyor and his predecessor the "Surveyor or Supervisor" as an independent statutory officer has been recognised by all the statutes.

RURAL BY-LAWS.

To the Editor of the JOURNAL R.I.B.A.,—

SIR,—It may be of interest to members of the Institute to know that the Paper read by Mr. Lacy W. Ridge on the above subject, together with the resolution passed at the subsequent meeting on the 9th January, have already had a very practical result. As reported in the *Hampshire Independent* of 4th February 1905, the following proposition was unanimously agreed to by the South Stoneham District Council.

"The attention of this Council having been called to the following resolution passed by the Royal Institute of British Architects on 9th January 1905—'That in the opinion of this Meeting it is desirable that the Local Government Board should obtain parliamentary powers to enable it to reform the by-laws now in force in rural districts and in the smaller towns with a view to the enactment of such by-laws, and such by-laws only, as are required in the public interest'—it is resolved that the Clerk of this District Council be instructed to communicate with the Local Government Board informing them that the resolution of the Royal Institute of British Architects has the sympathy and support of this District Council."

It would be a great advantage if members of the Institute could bring this matter before those in a position to submit similar resolutions to local authorities, as this would greatly assist the Local Government Board in obtaining the suggested powers.

The by-laws of the District Council referred to are far more stringent and "impossible" than those of many large towns, although their district is entirely a rural one; so it will be a great advantage if the Local Government Board can take the matter in hand.—Yours faithfully,

N. C. H. NISBETT [*A.*].

REVIEWS.

BUILDINGS IN THE COTSWOLDS.

Old Cottages, Farmhouses, and other Stone Buildings in the Cotswold District. By W. Galsworthy Davie and E. Guy Dawber. La. 8o. Lond. 1905. *Price* 21*s. net.* [*B. T. Batsford,* 94 *High Holborn.*]

This volume, in which Mr. Guy Dawber gives us an introduction of some seventy pages to a series of reproductions from photographs specially taken by Mr. Galsworthy Davie, is attractive outside and in, with its admirably designed cover and its excellent and well-chosen illustrations.

If such a book were of no further use it would serve as an historical record of a type of buildings which have almost disappeared in many parts of the country, and which the lapse of time, model by-laws, and agricultural depression are rendering fewer and fewer year by year. If only some kind soul had done the same by Oxford some twenty-five years ago—and Oxford may almost be regarded as a part of the style with which this book deals—the record would have preserved to us a large number of really beautiful buildings of minor importance which have since been swept away, leaving the town the poorer and the uglier. Will not someone collect the remainder?

But, apart from its historical aspect, the subject is one of intrinsic beauty and interest, since it deals with spontaneous and simple architecture of the country without affectation or attempt, which should be a standing rebuke to most of those who preside over the corresponding efforts of our own day, and an inspiration to those who would help to better them. The book deals only with smaller buildings, and does not touch upon the manor houses that abound along the course of the trout streams in the valleys standing among rich meadows, fine timber, and clustering farms and cottages, such as are here described and pictured; but the letterpress is well worth study, and the illustrative sketches and plates are admirably chosen to bring out the characteristics of the Cotswold stonework.

The plans are given of some of these cottages and farmhouses, but there is not much in them to arrest attention. The real interest lies in the methods by which from the simplest plans charming and picturesque exteriors are obtained, owing to the grouping of roofs and chimneys, the spacing of solids and voids, and the arrangement and design of windows and doors. From such methods invaluable lessons may be learned, though they may not conform to conditions under which the modern architect has to work.

Particularly interesting are the descriptions and illustrations of the masonry of the sixteenth and seventeenth centuries, and of the methods of getting and laying the slates, upon which the effect of the buildings so much depends. Traditional methods are still followed, and no slates and no slaters make better roofs to-day.

Nothing of its kind surpasses the fine sweep and colour of the great barn roofs that cluster round the houses; and, while there is much charm, as Mr. Dawber says, "in the absence of small outbuildings, which detract from the restfulness of the main house," one cannot help feeling that some of them gain very much from the picturesque grouping of accessory buildings that surround and buttress them. One may instance, among many others of the farm or manor-house type, the house at Syde, and, though, of course, on a much larger scale, Shipton Court.

One might wish that elevations or views could have been placed with some of the plans, so that the architectural growth from their simple lines might have been compared with them. Plates as well as plans are given of Medford House, Mickleton, and of a cottage at Snowshill; but unfortunately the reference to the plate is wrongly given in the text. Again, on page 38 we are referred to Plate LXX. for an example at Paxford, to which we turn and find there a group of cottages at Bibury. (Oh, for a sketchbook and a rod in may-fly time at Bibury!) One may also instance such inaccuracies as the assignment of Lyddington to Northants in the text and to Rutland on the plate, and of a finial to Broadway in the text and to Broadwell in the accompanying marginal sketch. Such inaccuracies are not uncommon, and are certainly inconvenient to the reader; but they do not affect the value of the book, and may be noticed with a view to their being corrected in future editions, which it is hoped may follow.

Later developments of the style, as Mr. Dawber notes, consisted chiefly in alteration of mouldings, and not in general traditional treatment. Their character and section changed, but not their function in the design, and the treatment of wall spaces, and of roofs and dormers and eaves, underwent scarcely if any modification. He gives various instances and illustrations, and the reviewer remembers one example with which he was struck behind the park at Great Barrington.

The interest of the plates is maintained throughout, and the last and hundredth is one of the most charming of them all.

PERCY S. WORTHINGTON.

ALLIED SOCIETIES.

THE LEEDS AND YORKSHIRE SOCIETY.

Modern Architecture in London.

At the rooms of the above Society on Thursday, the 8th inst., Miss Ethel Charles [*A.*] read a paper on "Modern Architecture in London," Mr. G. B. Bulmer [*F.*], President, in the Chair. The lecturer said that London had the reputation of containing more bad work than any city in the world for its size, though it also contained some of the finest buildings in existence; most of these latter, however, had been erected during the last thirty years. The use of salt-glazed bricks was recommended, as they keep their colour and do not collect the dirt and grime like stone and brick. Slides were shown of New Scotland Yard, the National Liberal Club, the City of London Schools, the London School Board Offices, and many others, which illustrated how the general tendency of modern work is to experiment rather than to rely on tradition; how modern work is personal rather than national, and is characterised by endless diversity; and how this diversity is further intensified by the complexity of modern life and modern requirements, and by the large choice of material within easy reach. Steel, unacknowledged, plays a prominent part in modern designs, accounting for much of the unsatisfactory appearance of our street architecture. Many of the buildings on the Embankment were shown, as this is the most successful river frontage in Europe; it would be difficult to find in any other city so many fine and important buildings in one street ranging from the Houses of Parliament to the Electric Light Station, and it offers excellent examples of buildings devoted to the most varied purposes. There were also shown slides of various business premises in the City as illustrative of the fact that it is to the commercial element of our social condition that we must look for the growing prospects of London architecture.

G. ERNEST REASON.

THE SHEFFIELD SOCIETY.

Relation of Design and Handicraft.

At the ordinary monthly meeting of the above Society, held on the 9th inst. in the lecture hall of the Literary and Philosophical Society, Mr. T. Swaffield Brown read a Paper on "The Proper Relation of Design and Handicraft." There were signs, he said, that the efforts of great thinkers had stirred the still waters of apathy and brought to the surface one or two questions whose apparent complexity had diverted attention from their origin and hindered their solution. One of these was that of the proper relations of design and handicraft, about which much had been said and written by those whose trade it was to talk and write, but little by designers and craftsmen, whose business it was to know and to do. The architect was the arch-type of designers, because the architecture of nations is the petrified symbol of the sum of their art, and of much else of importance in their history. And even now most design and work was in some way dependent upon architecture. Therefore it seemed a fitting opportunity to speak upon the relationship of design and handicraft. He thought these were not in a healthy condition, because of the common use of the two terms as things apart, not merely qualities of the same thing as inseparable for use as soul and body. And they were not only spoken of, but treated as things to be practised by separate individuals, separate classes, and in separate places. He attributed this partly to the modern propensity for analysis rather than synthesis, which concentrates attention upon parts and loses sight of the whole. And so the significance of the word "art" is lost, and it is applied to what is not art, just as "charity," religion, and so on, are applied to quite different things. But, fortunately, as a matter of practice, the complete division of the spiritual and material was impossible, because no conception could become visible except through handicraft of some degree. The use of pen or pencil to record it was handicraft; but the greatest skill in the use of the chosen instrument would not produce a work of art in the absence of conception. Want of appreciation of this simple fact had caused great errors, and efforts to grasp it had led to absurd results for lack of comprehension. The former led to the destructive division of the two functions, the latter to the crippling of them by unfitting union. He, then, while disclaiming any concern with any but "applied" art in this lecture, called attention to the immense utility of "gallery" art as furnishing specimens illustrative of the effective co-operation of motive, conception, and execution, unhampered by commercial or other deterrent influence, and forming precious ideals for our guidance. But it must be recognised that in applied art, although the same principles govern, their application is subject to the limitations of material &c., and it is necessary to economise power by confining the best effort, which is the rarest, to the tasks which need it most. And this was "specialisation," which he thought was, by unwise use, the cause of much of the mischief, because it led to the arbitrary choice of unfit material for the making of the craftsman to fit the subdivision of specialism, instead of encouraging his development to his fittest place. And so the designer and craftsman lose touch of each other, and their work suffers in consequence, as well as the men. He then referred to the older methods under which the craftsman practised his craft with full scope for his power, and whose position depended upon that, and advocated the adoption of similar methods; but pointed out that the change must be gradual, for fear of greater confusion. For although he attributed the mischief to over-specialisation, this in itself was but one of the results of "civilisation," and had grown with it. This civilisation had been defined as the "art of living in cities." He would prefer to call it becoming "inured" to them, and insensible to the influence of beauty; and he then endeavoured to show how their incidents affected art—which was the very and only remedy for them—so that things seemed at a deadlock. But it was not so, because such societies as theirs showed that some men were not content to remain in apathetic indifference. The effort of the last fifty years to popularise art practice had failed because it attempted to teach the unteachable. Art could not be taught. He gave some of the results of last year's examinations in support of the statement of failure. He suggested that the remedy was a system of co-ordinate education which, beginning in the school, should lead the child through its different stages by selection at each step, eliminating early those whose dispositions were towards mechanical or commercial pursuits, and taking the others by wise advice and guidance along the paths which their experience and tastes led them to choose, not putting them through the usual rigid course which so often leads to disgust and abandonment. He thought that this would restore the unity of art practice and elevate the worker, creating a force which would ultimately crush the sordid influences which made our surroundings what they were.

MINUTES. VIII.

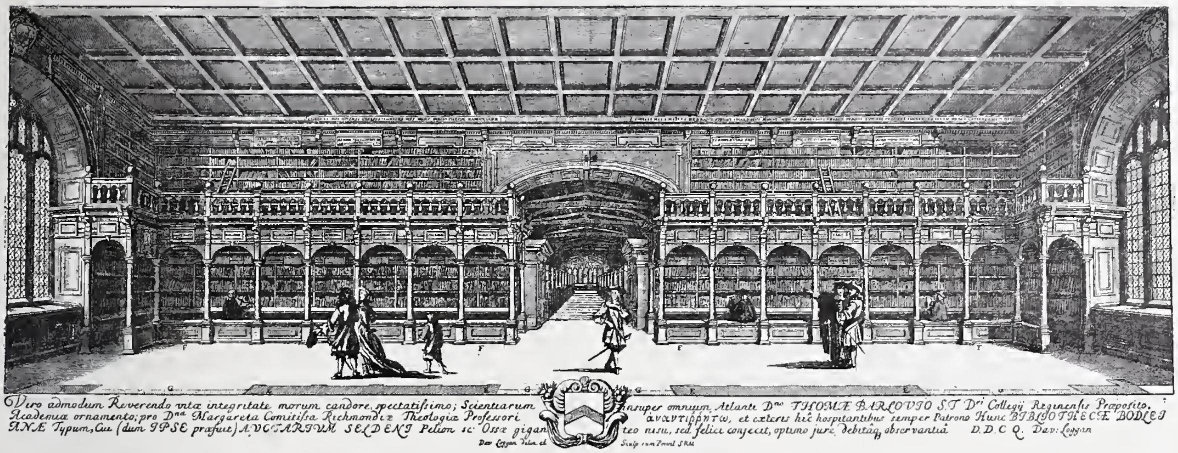
At the Eighth General Meeting (Ordinary) of the Session 1904–5, held Monday, 20th February 1905, at 8 p.m.—Present: Mr. John Belcher, A.R.A., *President*, in the Chair, 37 Fellows (including 13 members of the Council), 32 Associates (including 1 member of the Council), 1 Hon. Associate, and visitors—the Minutes of the Meeting held Monday, 6th February 1905 [p. 235] were taken as read and signed as correct.

The Hon. Secretary announced the decease of James Thomson, of Glasgow, *Fellow*, elected 1878; and James Barnet, of Sydney, New South Wales, *Fellow*, elected 1886.

The President tendered the congratulations of the Institute to Mr. Reginald Blomfield on his election as Associate of the Royal Academy.

A Paper on ARCHITECTURAL EDUCATION having been read by Mr. Reginald Blomfield, the subject was discussed by Sir Arthur Rücker, F.R.S., Principal of the University of London; Sir Aston Webb, R.A., Mr. T. G. Jackson, R.A., Mr. John Slater, Mr. H. Heathcote Statham, Mr. Maurice B. Adams, Mr. Edmund Woodthorpe, and others: at the conclusion thereof a vote of thanks was passed to Mr. Blomfield by acclamation.

The proceedings closed, and the Meeting separated a 10 p.m.


Viro admodum Reverendo vitæ integritate morum candore, spectatissimo; Scientiarum insuper omnium Atlanti Dno THOMÆ BARLOVIO S.T Dri Collegij Reginensis Præposito.
Academiæ ornamento; pro Dna Margareta Comitissa Richmondiæ Theologiæ Professori ἀναντιρρήτῳ, et exteris hic hospitantibus semper Patrono Hunc BIBLIOTHECÆ BODLEI
ANÆ Typum, Cui (dum IPSE præfuit) AUCTARIUM SELDENI Pelion sc: Ossæ giganteo nisu, sed felici conjecit, optimo jure, debitaq observantiâ D.D.C.Q. Dav: Loggan
Dav Loggan Delin. et
Sculp cum Privil S.R.M.

The Bodleian Library, Selden Wing. From an Engraving by David Loggan in *Oxonia Illustrata* [fo. Oxon. 1675].

PUBLIC LIBRARIES, THEIR BUILDINGS AND EQUIPMENT: A PLEA FOR STATE AID.

By Maurice B. Adams [*F.*].

Read before the Liverpool Architectural Society December 1904, and the Leeds and Yorkshire Architectural Society February 1905.

THIS is a Paper mainly dealing with the requirements of to-day, and therefore, by way of introduction, there need be no hesitation in my claiming your indulgence if I emphasise the importance of a comprehensive, not to say a liberal-minded, survey of the whole question of library legislation, presenting, as the subject does, one of the contemporary problems of our time. With this intent it seems to be eminently desirable to review the project in a less restricted manner than has hitherto been attempted by according to the rate-aided library its true position in a co-ordinated scheme of national education. To effect this efficiently we must endeavour to ascertain the exact proportion of things by setting out a few leading considerations in juxtaposition to be judged by their merits from an inclusive and instructed point of view, at the same time applying, if you will, the exacting criticism of cold analysis and the test of plain commonsense without any indulgence in a style of advocacy open to the charge of vapid enthusiasm. For one thing it is certain that in the absence of enthusiasm of the right sort precious little progress is ever accomplished, while, without sacrifice, of course nothing is ever done. The pioneers of this movement need not, however, adopt a specious type of special pleading, though the temptation is considerable, in order to rouse lethargic public interest. Personally I have no desire to assume the pose of a preacher; but I do wish to assert in the plainest possible language the practical necessity of ensuring to the public library its proper place in the solution of educational administration. This is a work which is of pressing importance. The need is obviously urgent, and the necessity is undoubtedly ripe, for the simple and good reason that it is impossible to disguise the inevitable; consequently there must be no uncertain sound in stating the case. I know that, being a practical people, with naturally insulated ideas, we are bound to consider the cost in order that it may be determined whether the effort is really worth the while. As a community in any case we shall do well to recognise that the initial outlay will be considerable; also that no small sacrifice will have to be made. Foreign competition, written large, leaves us no choice. We may have in this place nothing to do with politics, with tariff reform, or fiscal schemes, though these questions do touch more or less directly what we have in mind. Apart from these allied affairs, upon which most likely we entertain different views, it can surely enough only be recognised that circumstances beyond our control have settled for us, once and for ever, the unrelenting demand for individual equipment and educational efficiency if we are to hold our own in the cosmopolitan possibilities of the immediate future.

Retrospectively the story concerning the origin of libraries and their subsequent history abounds in incidents of the utmost interest. Harking back to the mists of the far-distant past, we find that the famous "Record Office" which Assur-bani-pal founded more than twenty-five centuries ago at Kouyunjik stands out among the earliest libraries known, though the discovery four years ago of the library of the great temple at Nippur by Dr. Peters, of New York, carries back Babylonian civilisation to a period no less remote than 7,000 years before the Christian era. No document was found at Nippur of later date than 2280 B.C. The total number of tablets so discovered amounted to very many thousands, each being covered with cuneiform writing. Nippur is identified, it is said, with Calneh, one of the four cities mentioned in the Book of Genesis at the beginning of the kingdom of Nimrod.

This storehouse of Babylonian learning was arranged probably on clay or slate shelves, like a similar collection found at Derr, where the bricks or clay tablets were inscribed in the forgotten language known as the Sumerian. We have learned much since then, but we still are in the dark as to whether the librarian of those days required any sort of wheelbarrow when attending to the wants of some more than ordinary voracious reader. These little bricks, anyhow, must have been most tiresome to handle and house, and exceedingly difficult to catalogue for ready reference.

It is not my intention to pursue this aspect of the library, and I do not propose to trace what has been termed the genesis of the modern library through these ages of antiquity, or to note even the leading historic libraries of the world, ancient or modern, such, for example, as that of Pergamon, founded two centuries B.C., with its 200,000 volumes. Midst the crash of empires libraries more or less famous have always existed, and private collections were, fortunately for posterity, preserved, as in the book closets, say, of the Roman period, wherein the "Codex" or book in the modern sense was known. Subsequently the great library of the Vatican, the Laurentian Library at Florence, that of St. Mark's, Venice, the Radcliffe at Oxford, the library of Trinity College, Cambridge, and many more like the chained libraries of mediæval origin at Hereford and elsewhere fill to the full the page of history, which, however, must now no longer detain us. Their story has been so well described before—far better than I could hope to do—though it remains, perhaps, to repeat here what has quite lately been said by an eminent speaker: "Those who know very little of the past, and care very little for the future, are those who make the poorest business of the present."

The bibliography of the contemporary library is increasing, and librarians have also written much that is germane to its contrivance from their point of view. Possibly, therefore, it may be thought that little of practical importance remains to be discussed as deserving of your attention. Nevertheless, by attempting to gather up in some degree the knowledge which comes of experience, it is to be hoped that our present inquiry may be found opportune, seeing that the time has arrived when circumstances suggest the desirability of ascertaining whether the main principles hitherto in vogue are still equal to the requirements of the day; also whether our library buildings generally are precisely adapted to the ends in view.

That a considerable number of these institutions now in progress of erection are admirably planned few would attempt to deny; but are we quite so sure that the majority of them are exactly equal to the demands which are already asserting themselves in regard to the ever-extending enterprise of education which in the near future is calculated to assume even still larger proportions?

Dogmatic rules, however ingeniously formulated, cannot be adopted as universally applicable, and ideal plans, useful as they undoubtedly are, possess only a qualified value, being always more or less subject to modification owing to local requirements and actual conditions in individual cases which have to be dealt with on their own merits.

In accepting the invitation of your Society to read a Paper on "Library Design," I will endeavour to avoid going over the same ground which has been so well covered before.* My aim in dealing with this subject has not been so much to enlarge upon my own personal ideas about a class of buildings with which my practice has been associated as to bring to a focus the mature opinions available of those best calculated by every-day practical experience in the management of libraries to tell us what they have found most satisfactory and most adapted to their purpose in the libraries we have built, as also to let us know wherein they fail.

With this object, before commencing to collate my notes for this occasion, I put myself in communication with fifty librarians in command of some of the chief rate-aided public libraries in England, and about half a dozen leading questions were addressed to my correspondents. My warmest acknowledgments are due to these gentlemen, on whose busy time I could have no possible claim, and I thank one and all sincerely for the valuable letters which so many kindly sent me. By this means I hoped to learn what librarians really want and to find out some of the faults which we architects would do well to avoid in future. It will be admitted that practical deductions such as these ought to prove the best procurable guide, and in the result such an assumption has been found justified. As the answers gradually arrived I realised, however, that the multiplicity of counsellors, besides reassuring me of a safe position, introduced a conflicting element of contradiction on some salient points, which perhaps, after all, is to be reckoned as the most valuable asset of my little interrogatory. One of course did not expect any cut-and-dried consensus of opinion even on main details, and perhaps the replies received differentiate far less than might have been expected. It is scarcely possible to tabulate the answers, and I am unable to abstract a concrete judgment in the form of a definite result to my inquiry. For one reason this is so because librarians, like other mortals, find a difficulty in giving "Yes" or "No" for reply without a saving clause or extenuating circumstances.

I will presently attempt to supply in as concise and consecutive a manner as I can the substance of the information thus furnished, so as to share with you the advantage of its annotation.

Prior to entering upon any discussion in detail about the special arrangement of library buildings, it will be convenient briefly to allude to the subject of library provision in its wider aspect. This reference at once brings us face to face with the stern realities of what is called the "penny rate." The penny rate was fixed more than fifty years ago, when the question of public libraries was treated, as all experiments naturally are, in a half-hearted way, and, as a consequence, what was then thought ample has not only become an inadequate provision, but it is no longer capable of ensuring any real economy. Since those days the library movement has outdistanced the wildest expectations even in England.

As the law stands, any town can by a special Act of Parliament augment its penny rate support for library purposes. Twenty-eight boroughs, with satisfactory results, have done so. Amongst these no limit whatever exists in either Birmingham, St. Helens, Oldham, or Huddersfield. In Birmingham the rate now stands at 1½*d.*, and has never exceeded 1¾*d.* In St. Helens 1½*d.* has been voted sufficient. Huddersfield is content with a penny in the pound, and at Oldham a 3*d.* rate obtains; but it is there levied on only two-thirds of the gross rental, and provides for museums and art gallery as well.

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* "The Libraries of the Middle Ages," by T. G. Jackson, R.A., JOURNAL R.I.B.A., Vol. V., 3rd Series, p. 365, read 16th May 1898; "Public Libraries," by the late J. M. Brydon and Mr. F. J. Burgoyne, Vol. VI. p. 209, read 20th February 1899; "The Planning of some recent Library Buildings in the United States," by Sidney K. Greenslade, Vol. IX. p. 229, read 17th March 1902.

The increased powers thus obtained in these twenty-eight towns have not resulted in any reckless expenditure, and what has happened in these centres of intellectual activity and material advancement goes to show that if a fuller scope in the same direction were accorded generally, wasteful outlay would not necessarily result. Only in five of these towns has the library rate exceeded 2*d.*, thirteen are content with 2*d.*, and in eight towns 1½*d.* only has been reached.

This comparison leads us to turn our attention again for a moment to Oldham with its 3*d.* rate. That town possesses one of the most efficient systems for the distribution of books to be found anywhere in operation in England. Mr. Robert Bateman, the well-known librarian of the Whitworth Institute at Manchester, tells me that the Oldham distributing stations are located when conveniently possible at sub-post offices, the attendant of the same acting for postal and library business, and the stations are open during the same hours as the central library. Usually a small stock of books is provided, and the borrowers may either select from these or leave a list of books that are wanted. This list is forwarded to the central library, and one of the books thus asked for is sent to the branch the following day, there to await the borrower's application. Systematic daily collections and deliveries of books are made, so that the outlying districts are fairly well served, no less than 70,000 to 80,000 volumes being issued by these means every year at distances from one to two miles from the central library. The economy of this method is demonstrated by the fact that the cost amounts to only £220 annually; and this distribution in no way diminishes the ordinary issue at the central institution. The wide reputation of the picture gallery exhibitions at Oldham can only be secured by continued expense; and whatever that may be, the 3*d.* rate already referred to covers the outlay on it as well as on the museum.

At Croydon, where the penny rate rules expenditure, the system of distribution is very ingeniously managed, being in one respect, I understand, unique owing to the regulation which enables the borrower to procure a book on the day of application at any of the libraries of the town and return it, when done with, to either of the branches or central library. All the libraries are in telephonic communication, so that in a few minutes it can be ascertained whether any volume is available; and if the book happens to be at either of the depots other than that at which the application is made, the book is dispatched by the next borough tramcar passing that station, and a messenger awaits its arrival by meeting the tram when the car arrives at a given point near the library where the application was registered. This transport of books is made free of charge by the town cars. If a special motor car for library purposes could be provided a distribution might easily be made to all the branches twice or, if necessary, three times a day. Before passing on from Croydon I should like to mention that they have an admirable plan for circulating unbound photographs for art students from the libraries, using special little folio envelopes for the purpose. A bi-monthly magazine called *The Reader's Index* is issued by the Libraries Committee giving particulars of all the new books as they are added to the lending department with their catalogue numbers, sample reviews, and quotations from their prefaces, and I am informed that similar "buletines" are gradually becoming more general.

It requires little imagination to realise what a direful struggle to make ends meet in many a small township and country village must be experienced with only a penny rate for library purposes. In most places the attempt is practically impossible. The total sum available in some instances can hardly suffice to light and warm even a small building, not to mention the purchase of books and papers with other current expenses. If in fairly big towns the penny rate is not enough, the whole thing in villages becomes preposterous. No restriction is imposed by statute on the rates to be levied for any other necessity in municipal development, such as baths and water supply, tramways, electric lighting, dust destructors, and every other form of enterprise. The library alone is fettered and hindered; and as the library has to be co-ordinated with educational advancement some means must be found to enable the educational authority now established on the recently extended basis to co-operate with the library committees of Borough and County or District Councils. Grants to libraries have in some places been made for technical education out of what is called the "whisky money," but the existing incomplete and fitfully wasteful way of managing these affairs is far from satisfactory. Consider the loss of efficiency and waste financially resulting from the overlapping which occurs through different bodies having to work various branches of what should be administered in the most effective and economic way by one central body empowered to grant aid and exercise control. Under the Education Act, 1902–3, the powers of the local authorities now include the provision of education in all its forms, and it is most desirable that the public library administration should be included with the rest of the work.

By all means preserve local interest by ensuring local proprietorship in all public libraries and schools, reserving too a proportionate share in the responsibility of provision as well as maintenance similarly to the economic arrangement applicable to every other municipal or public institution worked on Local Government lines; but in some way or another the Board of Education, as representing the State, should certainly be possessed of statutory qualifications to include library enterprise when making grants for educational extensions based no doubt upon the relative amounts contributed for such purposes by means of the local rates. The present condition of things would not be tolerated a day longer in America, where libraries for many years have outdistanced our limited ideals in almost every particular.

The system of State aid for libraries obtains in Canada, Australia, and South Africa. The different States in America tax the value of property to establish and maintain libraries. The Government also has erected the Congressional Library at Washington, not as a mere reference library for the legislative branch of the Government, but as "the library of the whole American people directly serving the interests of the entire country." The New York Public Library when finished will rank as one of the most notable buildings of the modern world. The area of the city of Boston is about the same as Liverpool or Manchester, with a population of, say, 550,000. Its central library cost £473,000, and contains 800,000 books. There are ten branch libraries in the town besides, with an average of 20,000 volumes each. The yearly cost of maintenance is £52,000, out of which the city purse provides £47,000, the difference being met by donations and such like. I will not attempt on this occasion to describe this magnificent library, with its grand series of decorative paintings by Mr. Edwin Austin Abbey, which make it unique; but I may just mention one mechanical detail. The books from the stack-room alcoves are delivered in wire baskets running at the rate of 500 feet per minute on little electric tramways attached to the delivery centre. The books in some of these American libraries are dusted by means of horse-power fans discharging the dust-laden air outside the buildings.

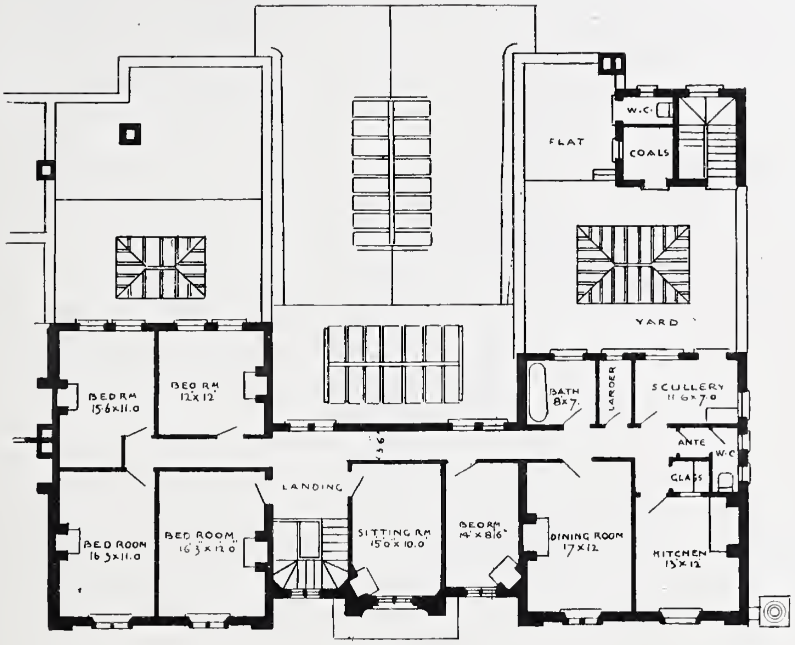
By way of comparison with the figures just quoted, turning again to Oldham, with its unique 3*d*. rate, it may be mentioned that the total so realised amounts to only £5,783 a year. The total issue of books in that borough is 167,142, as contrasted with 1,868,122 in Manchester, where, it may be useful to add, the 1½*d*. rate realises £18,200 a year for libraries. In

Massachusetts the State subsidises public libraries, not only in big and small towns, but in every village. I desire to go a step further than that, but in this way. I propose that imperial taxation should subsidise the library, not as a library alone, but as an auxiliary co-ordinated with the State provision for education pure and simple. At present this is beyond the statutory powers available; but surely so obvious and practical a course ought to be adopted without further delay by an enlightened Government. I will avoid pursuing statistics further, because figures are not entertaining to listen to, and, indeed, the above quotations will suffice to indicate the relative importance with which our hard-headed cousins beyond the Atlantic regard library legislation as compared with the Britisher's more restricted and localised notions. The fact is, we are lagging behind in the old-fashioned narrow path which is little likely to lead to any progress proportionate to the equipment of a pioneer race. It has been said that "the greatest citizen should not be above the public library, and the public library should not be above the meanest citizen." The question is, How best to elevate and reach the latter, so as to benefit him for pioneer duties. I am not arguing, nevertheless, in the direction of unlimited expenditure? Extravagance, we all know, inevitably means disaster. Frugality and thrift, unpopular though they be, are still the precursors of affluence; but a penny-wise-and-pound-foolish policy, so much favoured at election time, may prove extremely shortsighted, and at times it belongs, in fact, to the same category as mendacity in finance. Millions of money in the meanwhile are every year wasted in betting and in gambling speculations; vast sums go in transitory amusements and on unremunerative indulgences, regardless of the consequences, by all classes, who often begrudge even the penny rate, and vote, as a matter of course, against the adoption of the Library Acts on principle. All this is immeasurably shortsighted.

The further consideration to which, for a few minutes, we may usefully direct our attention before coming to the details of library planning has reference to another general question about which it is not easy to define exact conclusions. "Are a larger number of small libraries better than a smaller number of bigger buildings? The multiplication of branch libraries is, perhaps, a doubtful expedient; but on enquiring more closely into the matter it will be found that the solution of the inquiry depends very much upon the population per acre. At West Ham, the home of labour, there are three or four branch libraries which are most useful: a result largely due to the fact that readers are allowed to take away books from any library, instead of being obliged only to use the special building allocated to their own individual ward or district. Leeds and Manchester have more than fifteen, Nottingham twelve, Birmingham nine, Bristol and other places seven, Lambeth and several more like boroughs six.

Branches, however, duplicate stock, and each separate building necessitates at least two assistants and a cleaning staff. Centralisation, of course, economises such charges, and committees, fearing the frittering away of their limited incomes by opening branches, close their eyes to the injustice frequently done to those ratepayers who happen to reside on the outskirts of the district or borough. In compact cities and in London the erection of many branch libraries is not so pressing as in the majority of provincial towns. Very few places require more than two or three well-equipped branch libraries, such as every town of any size ought to possess. No ratepayer should be obliged to go much more than three-quarters of a mile from his house to the public library save in exceptional instances. In London, still, there are some parts which need an enhanced number of branch libraries (more than the penny rate will stand). Eltham, where I am about to build a new library, is three miles from Woolwich, and Plumstead is $1\frac{1}{2}$ mile from the central. Many ratepayers in such cases are more than a mile from any library.

The tendency hitherto has been perhaps to attach too much importance to the value of the newspaper department. It is to be doubted, however, whether it would be at all wise to



LIBRARIAN'S HOUSE

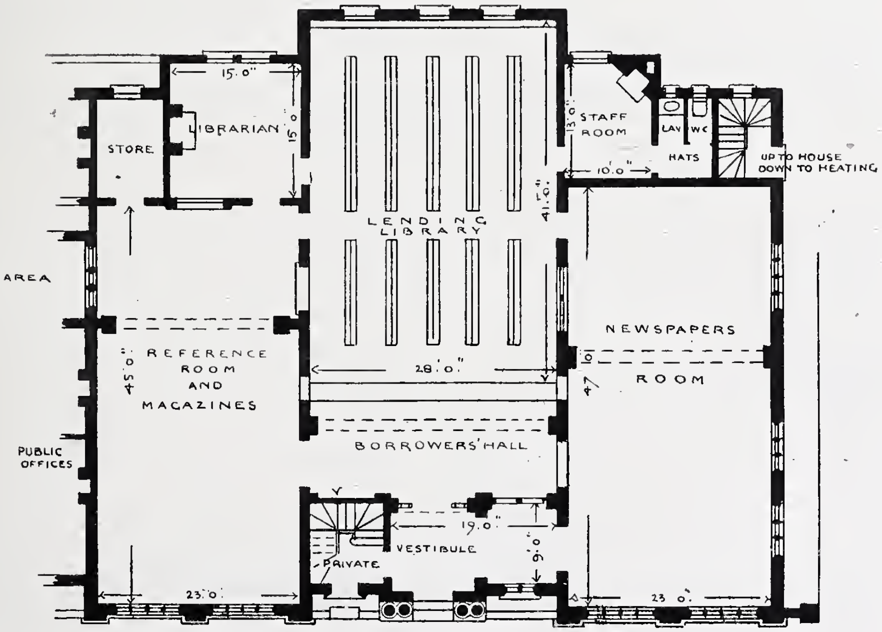


FIG. 1.—PUBLIC LIBRARY, ELTHAM, KENT. (Maurice B. Adams, Architect).

imitate the Americans in this respect, because, although provision is made for magazine reading-rooms, they seldom, if ever, provide newspaper-rooms at all in their public libraries. This has been in some degree accounted for by the paltry and unworthy character of the greater portion of the popular press in the States. The public-house in England too often is the only available attraction, and it is very desirable to provide warm and well-lighted reading rooms in competition with the tavern; but to do so successfully something better than snippity news sheets must supply the pabulum. The enormous circulation of papers full of betting paragraphs and frivolities, if not worse, which obtains among the young people who have been through the Board schools, shows more clearly than anything else the low standard of ideal so far realised. Some care has been taken to ascertain the proportion of scarcely reputable and low-class periodicals disseminated by high-class news agencies, to say nothing of the submerged publications sold in lower-class shops in back streets. It is not easy to compete with this kind of thing while so large a number of people are satisfied with such paltry allurements. We do, however, possess a highly important source of knowledge and intercommunication supplied by the technical weeklies and class or trade journals issued at popular prices unknown abroad. There is, nevertheless, a growing opinion among those who think for themselves that the far higher value of the reference room is too frequently sacrificed for the more popular reading-room, and that the reason why so few appreciate the contents of a library is simply because no effort is made to teach its intelligent use, and that the management of library affairs is conducted on inadequate lines. The first librarian of Islington, Mr. J. D. Brown, a pioneer in the advance movement, is, I am informed, recommending his committee to erect libraries without newsrooms.

The objectors to newsrooms, I find, may be thus classified. Either they are librarians employed in big libraries in rich districts, where naturally more importance is accorded to the standard library, or else they occupy positions in vast industrial centres, and so are brought into contact with the very real difficulty of the badly clad and dirty loafer who invariably infests the public reading department.

Reforms no doubt are needed to cope with this public nuisance, though to some extent it will always be more or less unavoidable. Rowton Houses—those admirable hotels for toilers—are said to encourage, if not to manufacture, loafers, the drones whom workers have to maintain.

There is one point upon which all authorities agree, and that is, if newsrooms are provided at all they must be ample: they cannot be too large, too light, or too well ventilated. Two rooms are thought desirable by the majority of librarians—one for newspapers and lighter journals and one for magazines and serious weeklies. The solid quarterlies and scientific publications are best consulted in the even quieter retirement of the reference room. For economy of administration the fewer the rooms the better, and I prefer one lofty and decidedly spacious room, such as the square and lofty reading hall which I built at St. George's-in-the-East. In that case, however, grille-protected book-cases surround the walls, so that the readers may select the books without having to consult a catalogue, the Bishop of Islington, then Chairman of the Library Committee, being of the opinion that his parishioners would far rather see the books for themselves; and the same idea is at the bottom of the growing favour accorded to the open-access principle, of which more presently. Having provided this one big apartment, I would personally prefer to put the paper slopes all round the walls, leaving the central area clear for tables on which journals and magazines should be fixed. This arrangement enables an uninterrupted view at a glance to be had over the entire room, besides which the wall slopes necessitate the high elevation of the windows; consequently no one can find excuse to loiter about merely to gaze aimlessly into the street

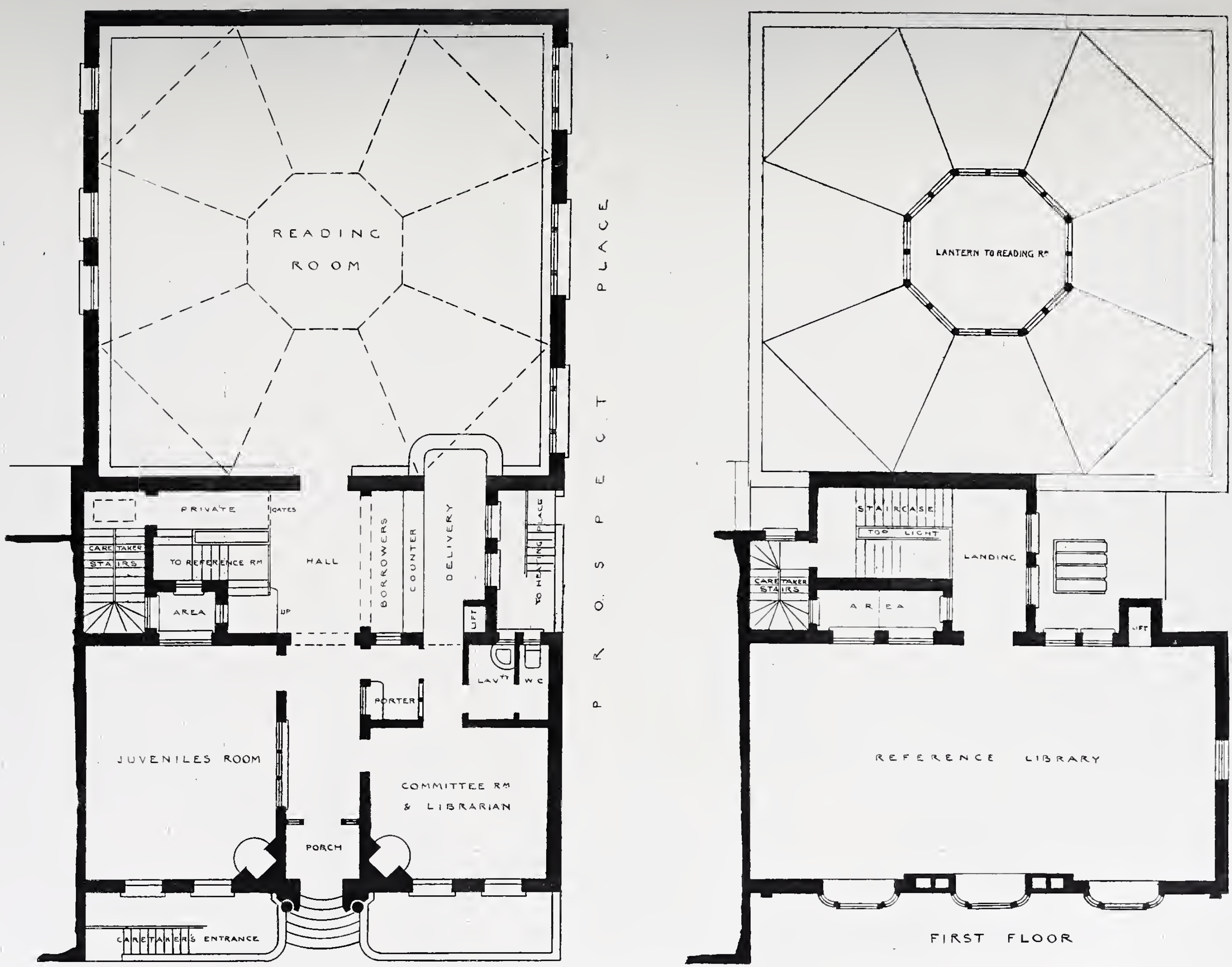


FIG. 2.—PUBLIC LIBRARY, ST. GEORGE'S-IN-THE-EAST. (Maurice B. Adams, Architect.)

and disturbingly chatter, as we often see them doing in many a library with windows in the ordinary position. Open fireplaces and radiators also encourage loafing, soil the walls, and increase dirt and dust. Every publication ought to have its own special place where it should be a fixture, so that readers may know at once if it is engaged or not. The bottom edge of the wall slope is best three feet from the floor, with a projection of one foot three inches, and the tilt of the slope should not be too sharp, or short readers will not see to read the top of the broad sheets comfortably. Two feet six inches is a good width for the height of the slope, and above that the title skirting for name tablets ranges as a capping, giving a total height of six feet. Eight feet six inches run will provide room for two big morning papers or three of the smaller ones, and, of course, the readers are best distributed by mixing daily and weekly papers together on the slopes. The illustrated journals require revolving bar clips, so as to show double-page pictures vertically, whether they are uprights or long-way prints. Every slope requires a strong brass bar in front to keep readers off the papers and prevent lounging. The brackets must be very strong and the bars very rigid, or they will get bent immediately. An iron bar for resting the reader's foot is a convenience.

Newsrooms are generally too small, indifferently ventilated, and lacking in height. The vast majority of my correspondents wisely make a point of the great advantage of keeping all the library rooms on the ground floor with top lights, and I notice that outside blinds are advocated by some. I fancy their advocates overlooked how soiled and rotten such blinds must speedily become. Vertical dormers are kept weather-tight better, and are less liable to noise from rain; they are warmer also in winter and cooler in summer than roof lights, unless second ranges of ceiling lights are introduced below, and these soon get dusty. A larger site is necessitated by a one-floor library, but the initial cost is generally repaid by economy of administration. A porter in large libraries is generally employed to supervise the newspaper reading-rooms, and in such libraries the reference department or even the lending library may, if necessary, be located on the first floor, or, as Mr. Henry Bond, of Woolwich, suggests, the magazine-room might go upstairs, because, as he points out, in many libraries the number of visitors to the lending department is four times as many as to the magazine-room, though this, of course, depends, to a large extent, on the nature of the publications kept in the magazine-room.* A library with most of its weeklies as well as monthlies in the magazine-room would have almost as many visitors to that room as the lending department.

Every 25,000 to 30,000 inhabitants ought to be provided with a branch library, and, in settling the size of such buildings, it is clear that when the population is compactly housed a 10,000-volume library permits of a much better distribution of books than two libraries of 5,000 volumes each, and besides one larger building ensures a more perfect selection of books without duplicating.

This conclusion leads up to the crucial question. How ought such a library to be judged? Is it only a book exchange? Should it be allowed to remain any longer a mere superimposed bulk, continually growing bigger as a sort of accumulating museum or emporium of books, or are we to make our libraries into workshops wherein the best books as figure-heads of learning and finger-posts to knowledge shall be made ready to hand as tools for educational development? In such an ideal library every reader would have access to two or three or more volumes at once, as in the British Museum. This is a far-reaching question, and at the outset, for one thing at any rate, will necessitate the weeding out of a lot of superfluous, useless stock, and a careful revise of all that is allowed to remain; it also means, instead of flimsy cloth-cased books, more worthy and more durable bindings, better printing, and superior paper, giving a permanent character to the municipal library, and making it a more valuable asset. One of the pioneers of library reform, Mr. John Ballinger, of Cardiff, tells me that the average cost of public library books is 1*s.* 11½*d.*, and he asks us to consider what about the value of such a library to the community.* Mind you, he knows as well as any man how to buy books in the cheapest market to the utmost advantage. His mature opinion is that if our modern selections of books are to be of any actual educational help they must contain choice and beautiful books, samples of fine printing, high-class illustrations, and beautiful bindings, in order to present a more worthy standard of craftsmanship for teaching people improved ideas and workmanlike methods. To accomplish these ends, however, the public must not only have access to the books, but there must be a more intelligent and more capable system of library supervision by employing a more efficient and higher qualified staff able to give advice to inquirers and help the reader to get what he wants. At present, in the vast majority of cases, any makeshift at the lowest possible salary is employed to do what is done; and who can wonder that our libraries stop so far short of their immense possibilities? It is surely a false economy to allow starvation wages to cripple efficient administration, thereby destroying all likelihood of enthusiastic progress; for unless a library, like any other enterprise,

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* I take this opportunity of saying that I am indebted to Mr. Hy. Bond, the Hon. Sec. of the Library Association, for reading the revise of this Paper before it went to press, and for several useful items of information also.—M. B. A.

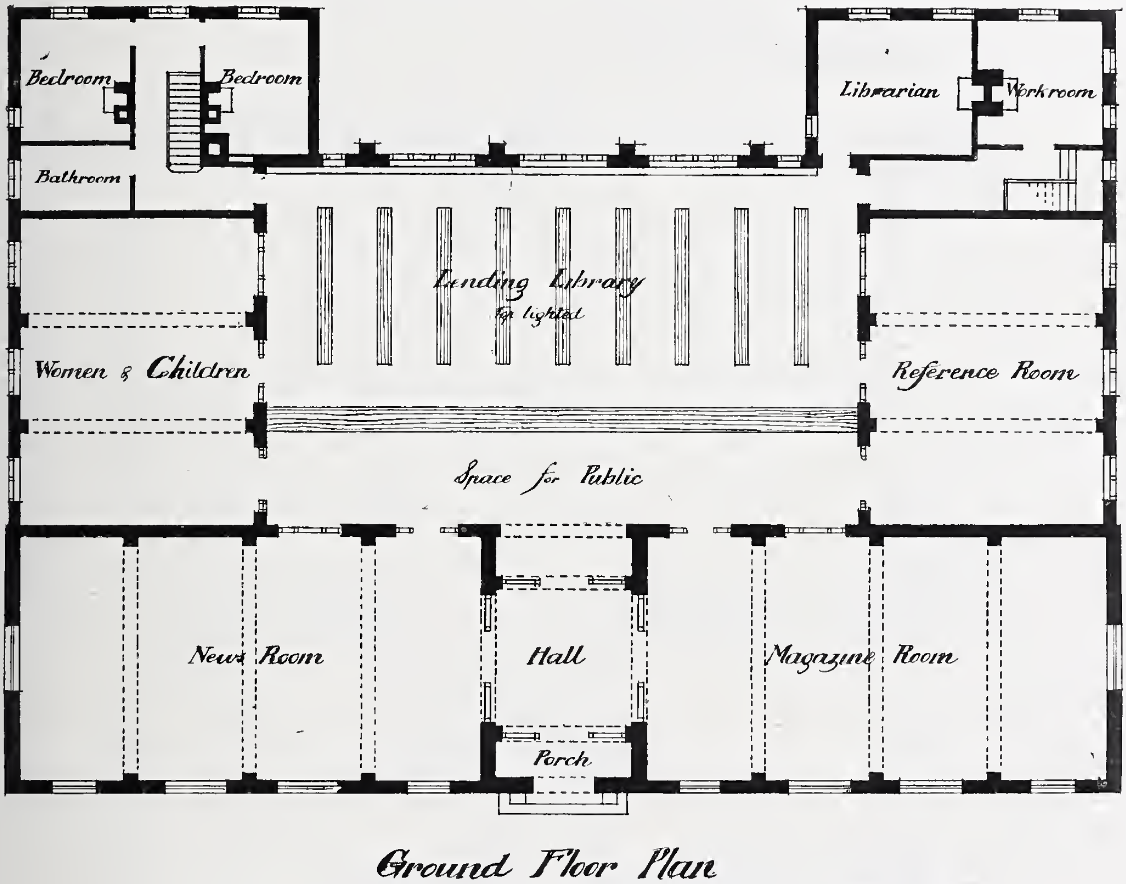

FIG. 3.—WAKEFIELD PUBLIC LIBRARY. (Messrs. Cox, Trimnell, & Davison, Architects.)

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* In reference to the average cost of choice books sold by auction during 1904 in England, it may be of interest here to note that the average price fetched by the 6,275 lots was £2 9*s.* 3*d.*—M. B. A.

is intelligently managed on ever-moving, up-to-date lines, it will flag and be a failure. Believe me, I have no wish unduly to estimate the enterprise displayed by the Americans, but all the same it does seem necessary to press home the importance of what they are doing. We cannot afford to ignore their endeavours, though we may lack sufficient public spirit to emulate them. In American Universities provision is made for the special technical training of librarians; consequently a highly qualified expert staff is obtained for their public libraries. They spare no pains to make their libraries beautiful, spacious, and useful. Every class is catered for, and the authorities who are responsible for their management take good care to remember the largest number of those who have to contribute to the cost of maintenance. I have alluded to the urgent need of furnishing reliable information about books and all that belongs to these public collections of ours, so that every ratepayer may be certain of

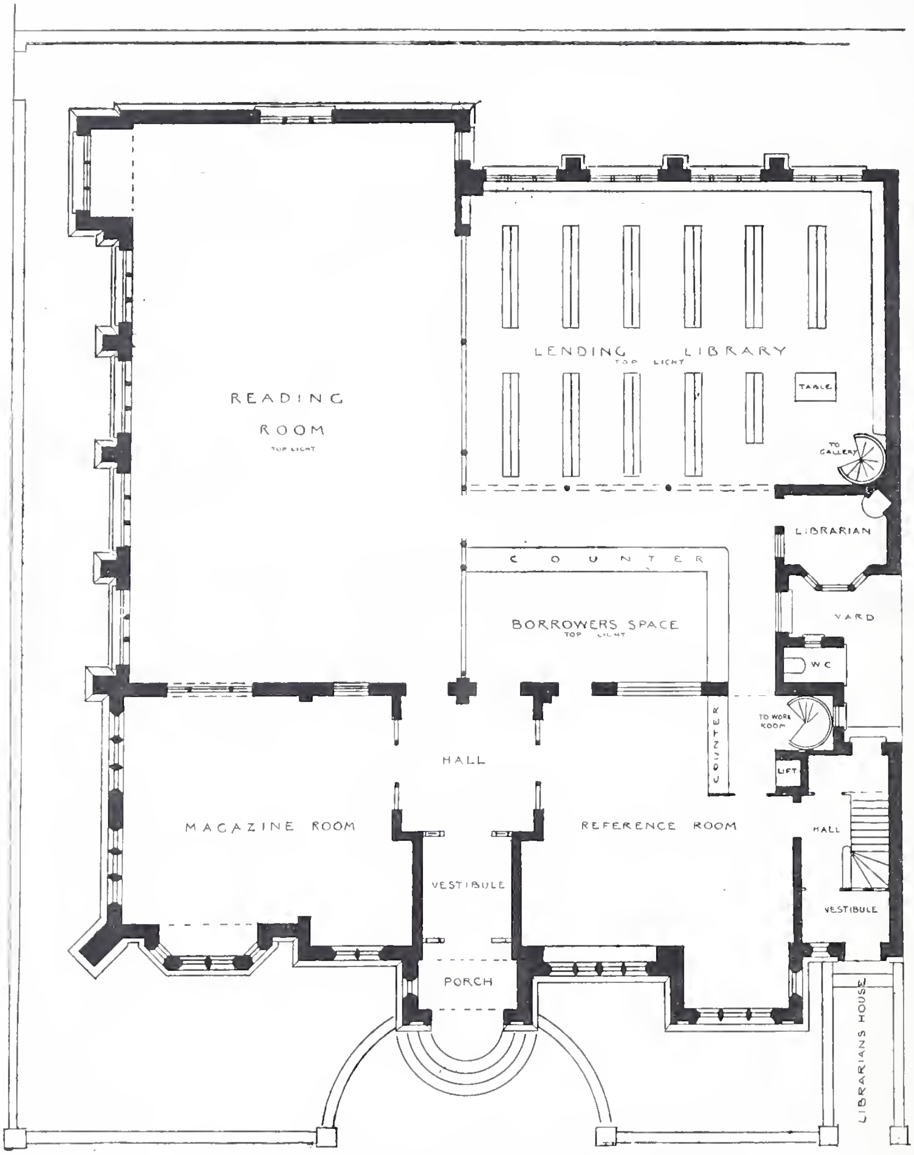


FIG. 4.—PUBLIC LIBRARY, ACTON. (Maurice B. Adams, Architect.)

capable advice and information. In America they go further than that, and have established regular inquiry offices in some of their State or town libraries. The provision has been attended by much success. This inquiry office is located near the library entrance. Readers are not only advised about books, but they are furnished with specially prepared lists to meet individual needs. There is hardly a subject of general information upon which help is not given gratis to any citizen. He may personally seek advice, or he may communicate by telephone and get immediate replies about questions of exchange values, quotations, or references. The scheme is thoroughly encyclopædic and entirely practical, even though at first sight it may appear to us a trifle like a fad. Every taxpayer, even if he never visits the library in person, realises in America that he can have something for his money simply for the trouble of asking. And who does not want information at some time or other?

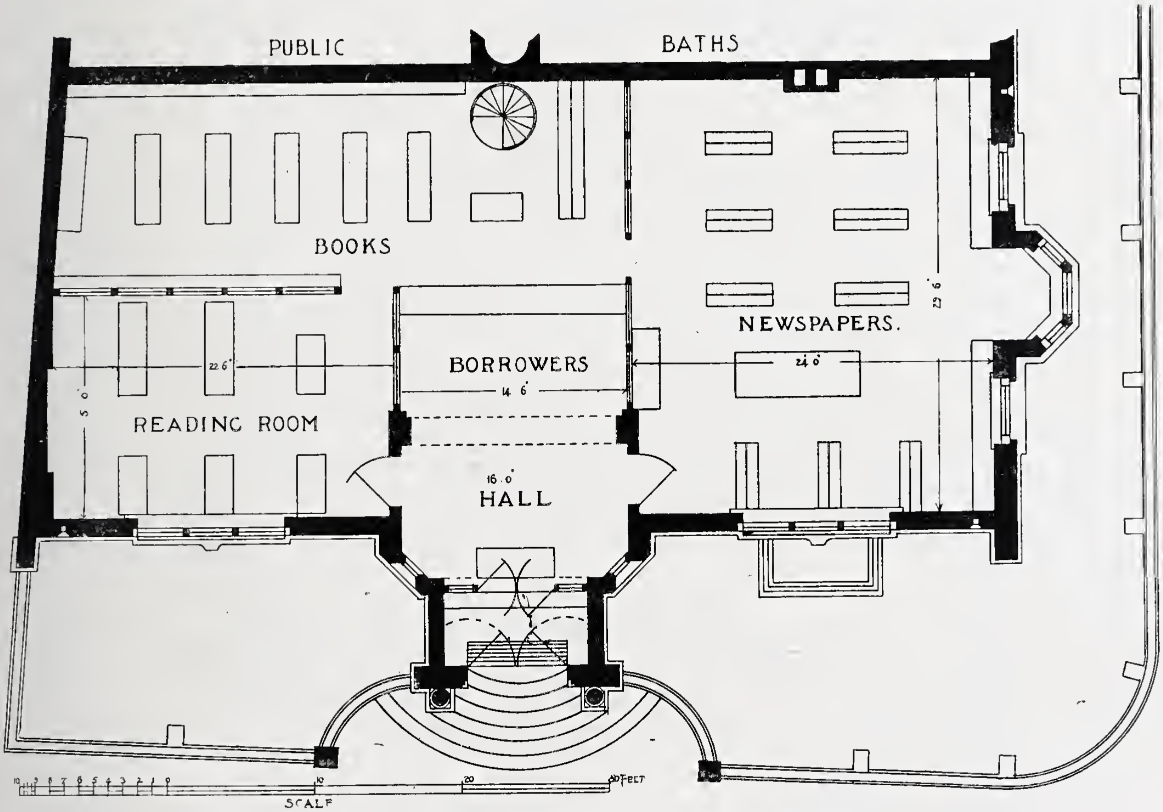


FIG. 5.—WELLS STREET LIBRARY, CAMBERWELL. (Maurice B. Adams, Architect.)

Elementary and secondary education is being provided by the community at an enormous cost in this country, with results, in spite of all shortcomings, unknown to former generations. Advantages are greater, competition is keener, luxuries are viewed as necessaries, and taxation is beyond compare. The issue which we have to consider is, Are we obtaining the most valuable asset in return for the expenditure? We teach children to read till they leave school, but after that what then? Only here and there, in isolated instances, is any real effort being made on a systematic plan to bring the rising generation, after their school days, within the influence of good, healthy literature by stimulating their taste for knowledge, so as to encourage the growing capacity of youth for its acquisition and subsequent specialisation. The dominating principle, which has to be more fully realised if our people are successfully to compete in international commerce and craftsmanship, is to emancipate our workers from the growing tendency encouraged by divided labour, which reduces them to the level of unthinking machines. We must teach the artisan to think for himself by showing him how to develop his mind. At the same time we cannot afford to ignore the importance of physique. It was Sydney Smith who sarcastically observed of a certain scholar: "That man has too little body to cover his mind; his intellect is improperly exposed." It is a great gain to know, nevertheless, what the best books have to tell, so that the world, past, present, and future, shall not present cloud and chaos to the mind, without order, system, and significance. Physical development by all means, and coupled with that no wiser or sounder investment can be conceived than the formation of school libraries and juvenile reading-rooms as part of the public library work and education curriculum of every town. In America the best positions in all libraries are accorded to the juvenile rooms. In Cardiff, at Croydon, and in Edinburgh, with perhaps a few other places, much has already been done, or is about to be done, in this direction. The enterprise is no fancy project of an amiable faddist working a craze at the cost of the overburdened ratepayer. The gradual steady increase in practical results at Cardiff shows its thorough usefulness. These few following figures are quoted from the last report of the School Board of Cardiff. During the five years since the school libraries were started in that town no less than 827,086 loans have been registered in the elementary, secondary, and higher grade schools. For 1899 the figures stood at 116,353, and for the year ending in September last the number had increased to 201,605. At the present time there are 11,306 books in circulation. To enable this system to be adopted the School Board made a grant of about sixpence annually on every child above the infants in attendance, which sum amounted to the equivalent of a rate of not quite $\frac{1}{12}$th of a penny; but inasmuch as more than a fourth of the children of the borough are in voluntary schools, the Church schools did not come within the scope of the scheme. The initial grant was £500 for the first year, and about £335 subsequently has been paid to meet the annual cost. The School Board and the Library Committee acted conjointly. Now the whole of the elementary schools of Cardiff are included for children in and above the fourth standard, and arrangements have been systematically carried out with a proper time table. The children visit the public libraries in parties of forty, under the conduct of their teachers, to receive a definite illustrated demonstration on some special subject mutually agreed upon, and the same lecture is repeated once a week for boys and once a week for girls until the whole of the schools have been served. I give you one instance in a few words. "The History of a Book" was taken, beginning with a clay tablet from Babylon, the parchment rolls, and papyrus books of ancient Egypt, the old horn books and black letter books of the Christian era, and so on, down to the last best sample of contemporary production. The children are seated round the room in such a way that each individual sees the objects as they are handed round for inspection. Essays are written by the more advanced scholars on these various lessons, the papers subsequently being corrected in the same way as other class work by the lecturer. The whole thing is most admirable. In addition to these juvenile classes in Cardiff a series of gatherings are also held for artisans and other adults with regard to special trades and callings, when the best books available dealing with their particular subjects are exhibited and explained. In such a town as Cardiff, with a vast industrial population grouped round one dominating centre of activity, the opportunity afforded for such classification is naturally much greater than in a town, say, like Croydon, which includes South Norwood and Thornton Heath, each with its conflicting local interests, tending to cripple unified action. Three polytechnics exist where one would succeed better. But be that as it may, I see from the report of the University of London on the educational facilities of the borough, just published, that the Council has given a grant (out of the whisky money, I understand) of £300 for some years for the purchase of technical books for the public libraries of the town, and special lists are posted up at the polytechnics for the information of the students. If that scheme can be carried out in Croydon, where out of a population of less than 134,000 inhabitants there is only one trade largely represented, viz. the building trade, with its 7,000 members, it is quite clear that many towns in the North and in the Midlands could well follow such an example. Indeed, I have the same authority for saying that the public library work at Croydon is a model of what a library should be, and that mainly owing to the great enterprise and organising capacity of the chief librarian, Mr. Stanley Jast, who originated the method of distribution by telephone and tram-car already mentioned. A highly successful scheme of "Library Talks" has for some years been held in the lecture-room attached to his central library, and brief reading lists on the

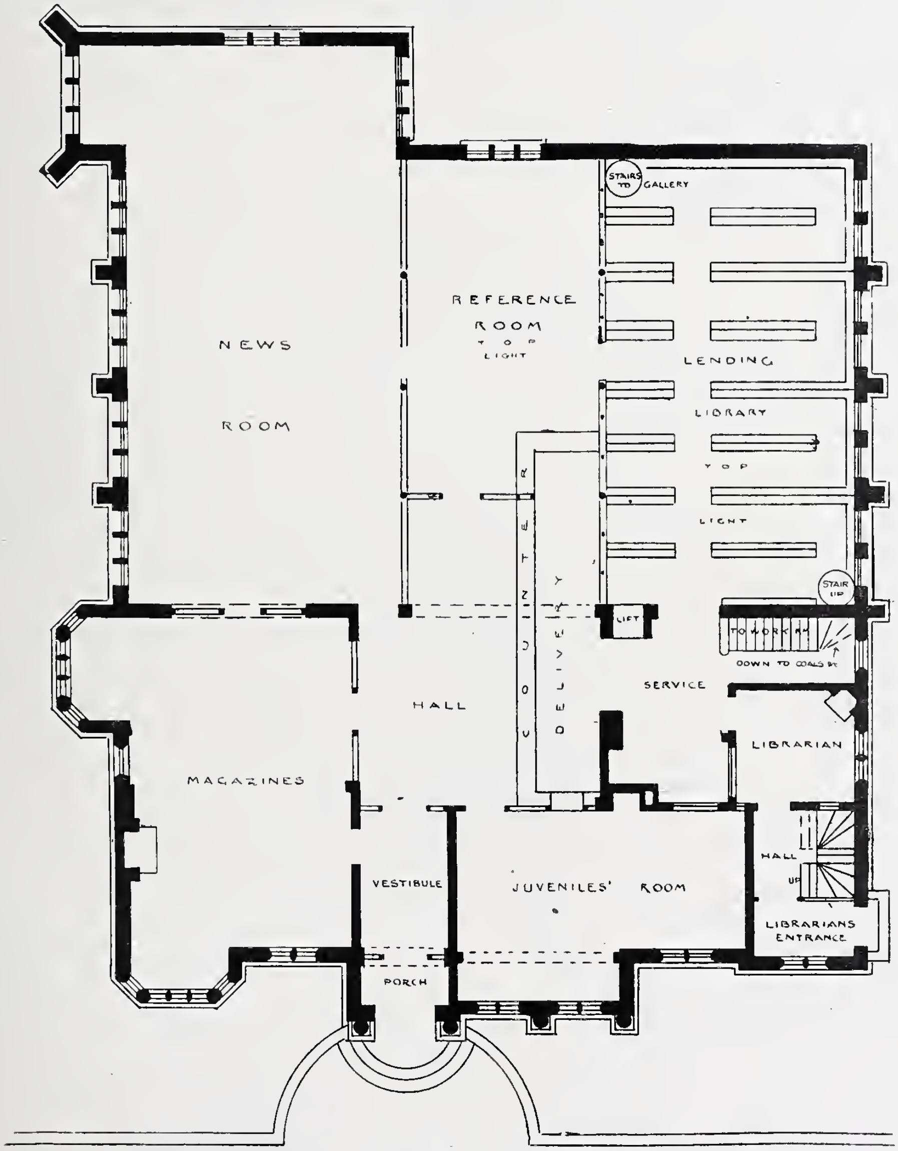


FIG. 6.—PUBLIC LIBRARY, HAMMERSMITH. (Maurice B. Adams, Architect.)

subjects of these "talks" are issued with the programme of each series. Each "talk" is illustrated by books in the adjoining library, and some also by electric-lantern demonstrations. The lantern belongs conjointly to the local branch of the University Extension Association and the Borough Library Committee. "Some of the ancient Churches of Surrey," for example, formed the subject for the talk held on 1st December. The speakers on these occasions are by no means confined to the library managers, and the whole thing is co-operative.

To provide for such occasions it is clear that a lecture room is needed as part of the library building, and undoubtedly a room of that sort would in many other ways be a great advantage. It should by preference be contrived on the ground floor, to be available as an integral part of the library when not in use for meetings or examinations. Its exit, at any rate, should be contrived clear of the usual business of the library, and an emergency door might well be located in the general porch or vestibule, as separated external doors impair supervision and are a mistake. Few libraries can now afford to do without a lecture room of this character.

We now come to the initial question in the planning of a public library as to the respective proportion of space which should be allowed to the different departments in allocating the available superficial area. Concentration of administrative area is of the first consequence, and long passages and perambulating corridors cost money and must be avoided. A roomy and even spacious entrance hall or vestibule whence all the departments may be seen of course is essential.

The open-access principle for the lending library, which was introduced into this country by Mr. J. D. Brown, necessitates at least half as much again floor area as when the closed or indicator system is employed. The space between the book-stacks in an open access library should be nearly twice the width needed by the staff, and the shelving ought not to be more than 6 ft. 6 in. high, while the lower shelves should not be so close down to the floor. There is not the slightest need to still further augment the cost of this department by radiating the book-stacks with the fallacious idea of gaining efficient supervision. Plans drawn that way look exceedingly attractive on paper, and in a competition are almost sure to take with an architect assessor, particularly if he happens to have never built a public library. The idea, of course, is that the issue clerks at the wicket counter can see all along each alley, and supervise all that is going on; but in reality that is not so: one or two persons standing at the narrower end of the aisle quite block up the prospect, and, besides, some assistants are ever on the move about the room, while the counter clerks have their attention occupied in working the register cards and superintending the returns and issues. You have only to look at a radiating plan to see how it wastes floor space, and in all my correspondence and experience I have not met one librarian, or seen a librarian's model plan, in which radiating book-stacks are shown or advocated. At any rate the radiating principle is only economically adapted to a library where the curve can be made a decidedly wide one to allow of intermediate short-length stacks, as at Kettering, the plan of which is here given.

Before tabulating the dimensions which may be quoted for the allocation of superficial areas in a library, it may be well to direct your notice to the advantage of having a double wicket or turnstile arrangement in the larger sized libraries planned on the open-access method in order that on busy days two streams of borrowers may be going and two streams coming out at the same time; otherwise people are kept waiting, and a large lobby is needed to accommodate an impatient crowd of ratepayers. The wicket gates must have an indication ticket on those occasions, showing that borrowers with names commencing with the letters A to K enter by one gate and those with L to Z go in by the other. The same at the exits. In the ordinary way one pair of gates only are required of course. Although the open-access

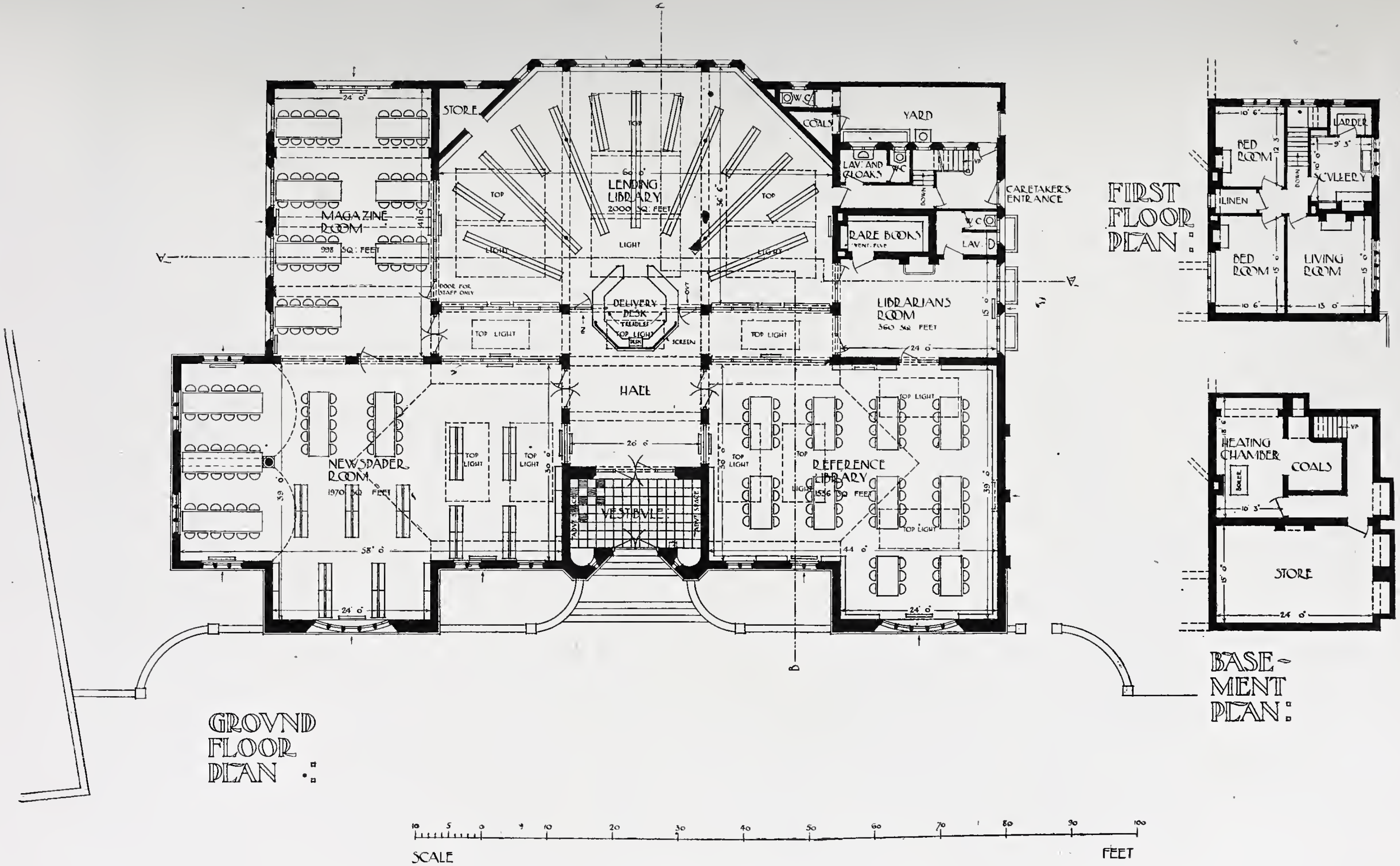
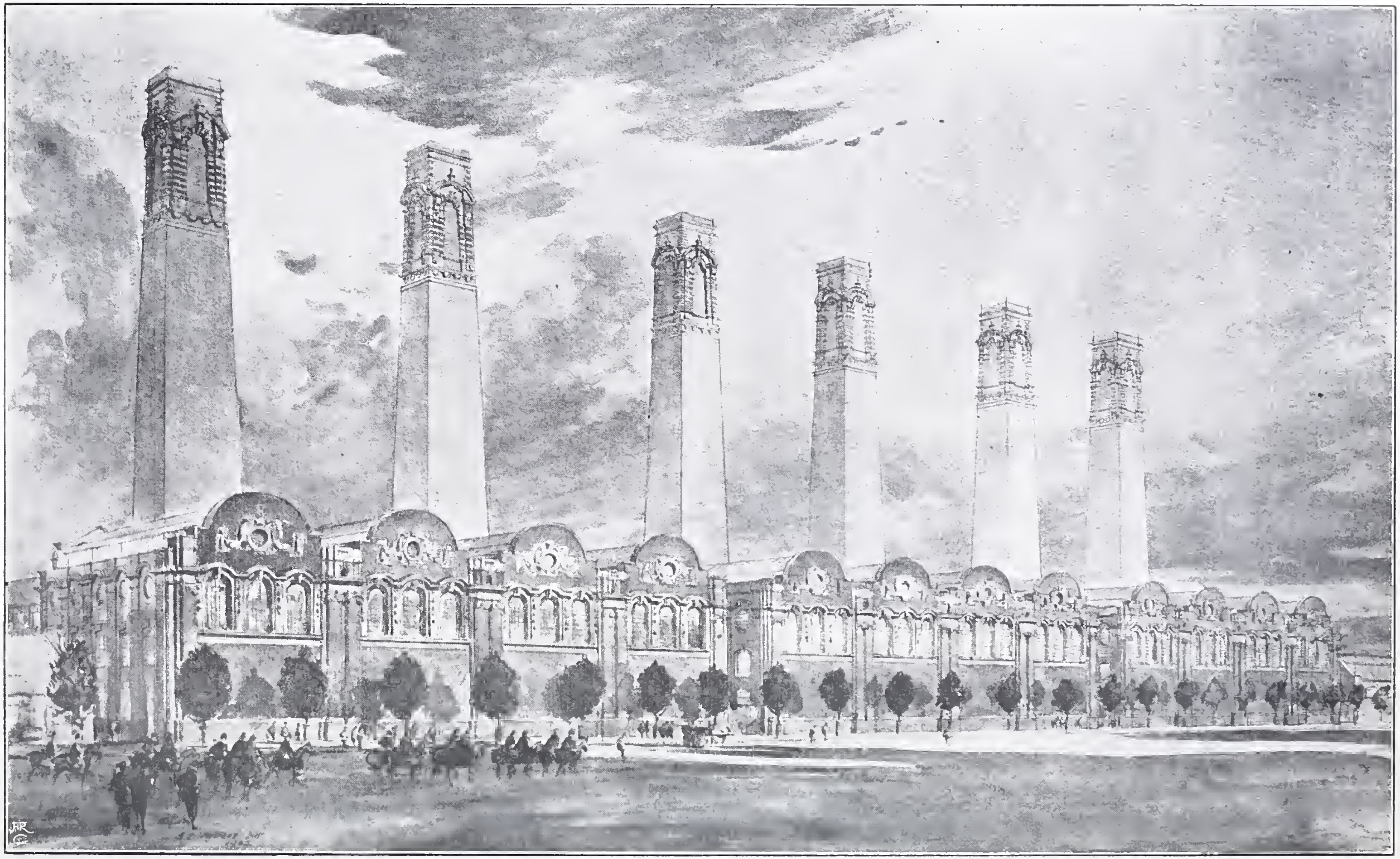


FIG. 7.—KETTERING PUBLIC LIBRARY. (Messrs. Goddard & Co., Architects.)



From a Water-colour Drawing by S. D. Adshead.

THE POWER STATION OF THE CENTRAL ELECTRIC SUPPLY COMPANY, LTD., GROVE ROAD, ST. JOHN'S WOOD, LONDON.

ELECTRICITY WORKS OF THE CORPORATION OF IPSWICH : NORTH-EAST VIEW.

NOTES ON THE DESIGN AND CONSTRUCTION OF BUILDINGS CONNECTED WITH THE GENERATION AND SUPPLY OF ELECTRICITY KNOWN AS CENTRAL STATIONS.

By Charles Stanley Peach [*F.*].

Read before the Royal Institute of British Architects, Monday, 28th March 1904.

IT has been the province of the architect in all ages to play an important part in the successive stages of the economic development of mankind, to keep in touch with his times, and to express in the buildings the sentiments dominating the period in which he practised his art. Thus the buildings of every period indicate the habits and mode of life of successive generations, and show posterity what men did and thought in bygone days.

The most noticeable feature of our times is the rapidity with which scientific discoveries are applied to commercial purposes, in consequence of which new industries constantly arise. The buildings required for these industries form an important branch of modern practice. Therefore, not only are they of considerable interest to the architect as being work with which he is immediately concerned, but it is essential that they should be closely studied if the architect is to maintain the traditions of the past and to take a like prominent part in the progress of the present day. That which is passing before our eyes does not attract like that which is woven into the warp of history; so it is not to be expected that the same interest can be aroused for buildings serving a modern purpose as for those connected with vocations or occupations which have been followed by mankind for centuries. Undoubtedly, buildings to which the romance of the government or of the religion of a nation is attached, the dwellings in which individuals of the race have been born, and lived, and died, must ever exercise a greater fascination over mankind than those in which their lives are spent toiling for their daily bread. Indeed, the latter buildings often seem to be regarded as of small account, as though they were something altogether apart from the life of the people, instead of being as they are, to a vast majority, the alpha and omega of existence.

the best architectural features of our modern towns. No one regrets more than I do the shocking blunders which have been made by erecting so many unsatisfactory and pretentious libraries, and I do most strenuously protest against the erecting of public buildings with public money without employing a specially qualified architect, and especially when, under the plea of saving such an architect's commission, the surveyor of the sanitary authority is allowed to prepare plans for works of this character. His very training which qualifies him as a road surveyor and for the particular routine duties of his office precludes him from being able successfully or even economically to carry out architectural undertakings. The public library requires its own individual treatment, and only those who have specially studied its requirements are qualified to design such buildings. No effort should be spared to make them beautiful and befitting to their purpose, fitting caskets for enshrining jewels of knowledge. If I have not devoted so much space as I might in describing the details of library planning, it is to be hoped that you will excuse me, my purpose being, as I said at the outset, to induce a wider and more comprehensive consideration of the matter. We cannot remain content with an insular position, as if library provision could continue a merely local affair. National education is imperial in its far-reaching consequences. England no longer remains the workshop of the world. Facilities of transport, vast colonial acquisitions, and extended powers of reciprocity in intercommunication have changed all such limited notions, while hitherto untried fields for enterprise, energy, and talent are opening up in all directions where the survival of the fittest alone is to be expected unaided by the leading-strings of privilege and class. The opportunity is now afforded, and the change is made inevitable; but it remains to be decided whether we shall rise to the occasion or not.

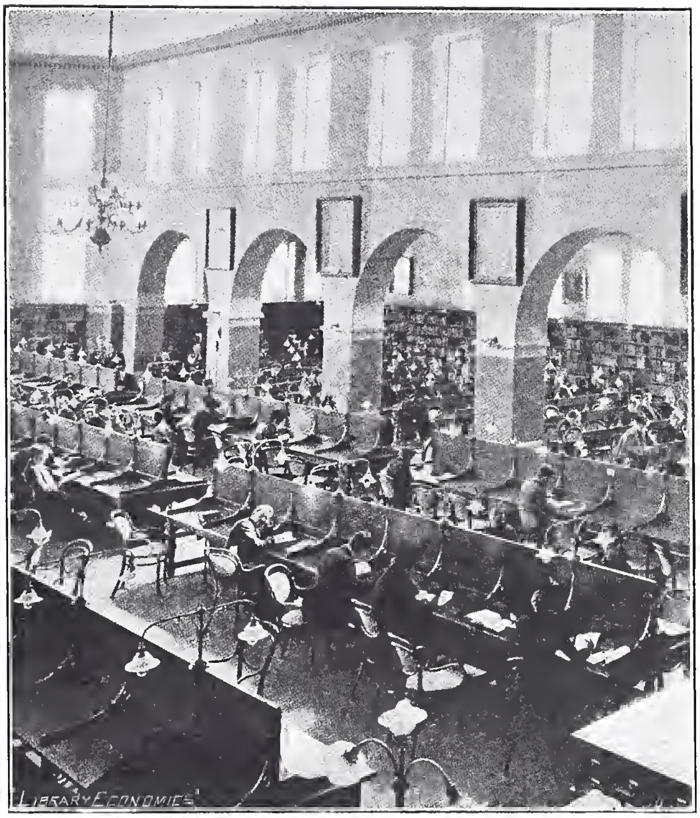


FIG. 9.—READING-TABLES, CORNELL UNIVERSITY LIBRARY, ITHACA, U.S.A.

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VIEW OF BERLIN FROM SUMMIT OF THE TOWN-HALL TOWER.

NOTES ON THE ARCHITECTURE OF BERLIN.

By Charles Gourlay, B.Sc. [*A.*],

PROFESSOR OF ARCHITECTURE, GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE.

BEFORE the fourteenth century Berlin consisted of two towns called Kölln and Berlin, which were united in 1307. The name Alt-Kölln is now applied to one of the two older quarters of the city. This part consists of an island in the heart of the city formed by the river Spree—much in the same way as the Ile de la Cité is formed by the Seine in Paris. The other old quarter, called Alt-Berlin, is situated to the east of Alt-Kölln, and is separated from it by the Spree only. Although the city of Berlin dates from the mediæval period, yet very little mediæval work is now to be found there. The oldest church is that of St. Nicholas, the earliest portion of which is the granite lower part of the western front, dating from the thirteenth century. The upper part of this front is of brick. It has two brick towers with slated spires: the southern one is old, but the northern is modern, having been added at the time of the restoration of the church, about 1880. The interior of the church is very picturesque, and is built of brick, with both nave and aisles vaulted in brick. There are many monuments in the interior, mainly of Renaissance date, which are of interest in that they show the forms used during that period in Germany.

While there are other old buildings worthy of mention, yet an architect visiting Berlin receives more profit from his study of its recent work than of any other. Before dwelling upon this recent work, however, a few words must be written with reference to the architectural

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development of Berlin. From the middle of the seventeenth century to the middle of the nineteenth Berlin owed much to the Kings of Prussia, who fostered the erection of magnificent buildings in the city. During the reign of Frederick William, "the Great Elector," the new town of Berlin was founded. This involved clearing away a large forest, and on its site were planted those rows of lime trees which now form the well-known and magnificent avenue called the Unter den Linden, on either side of which so many important buildings have been erected.

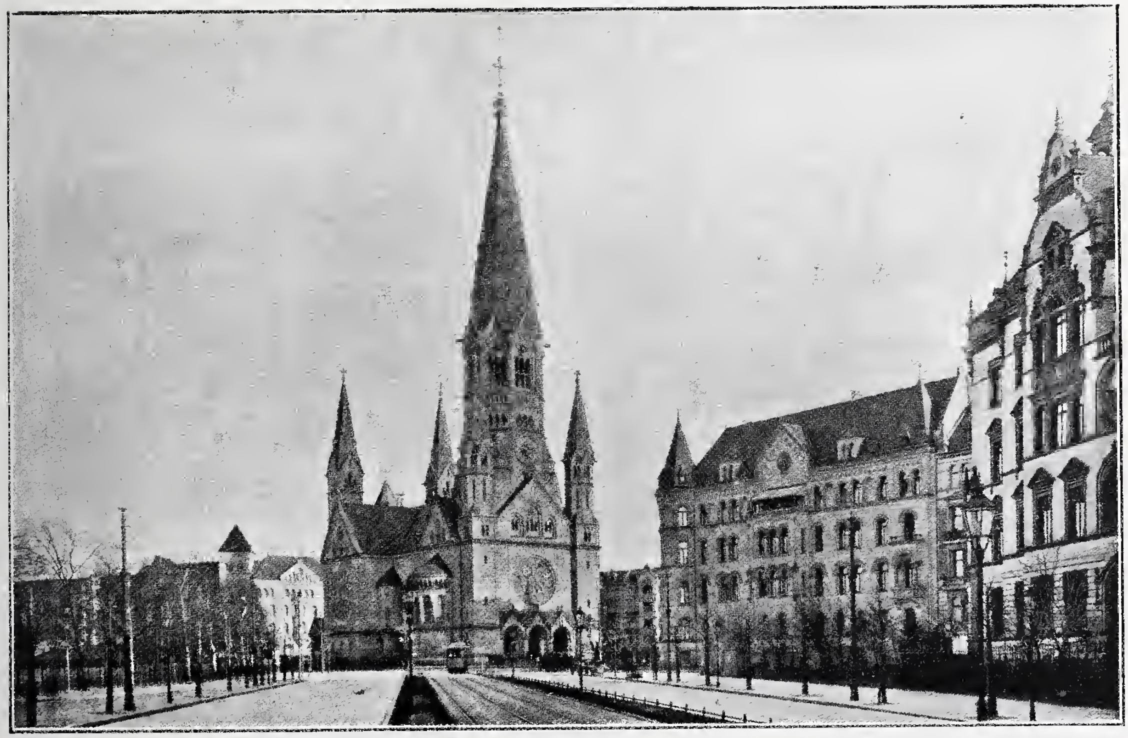
Andreas Schlüter was the greatest architect during the reign of King Frederick I., between 1701 and 1713; and Knobelsdorff, who held this position in the reign of Frederick the Great, showed himself to good advantage in the Opera House erected in 1743. During the reign of Frederick William II. we meet with the first building of the Greek revival period in the Brandenburg Gate, which was designed and erected by C. G. Langhans, architect, in 1793. Although the suggestion of such a gateway comes evidently from the Propylæa at Athens, yet in detail it is not a copy. In fact, beyond the general idea of a columnar centrepiece and side wings, it shows distinct evidence in the columns with their bases, and in other features, that the architect thought for himself. The result is certainly most successful—it *is* a gateway to a great city.

The next distinguished architect was Friedrich Schinkel, who designed and erected the Royal Guard House, in the Greek Doric style, about 1818, and the Royal Museum, in the Ionic, in 1828. This latter building is considered to be Schinkel's masterpiece, but both of these buildings show a closer resemblance to ancient forms than the Brandenburg Gate. Schinkel shows his ability as an original designer, however, in the Academy of Architecture, erected in 1834, in which we see brick used in an admirable manner without any detail of the revival sort, and also without being covered with stucco, as so many of the buildings of this period were treated in order to represent stone. The platz, or square, in front of this building contains Schinkel's statue, and is worthily named after him.

After the Greek revival came the Gothic, an instance of the use of this style being St. Peter's Church, erected from designs by Strack, the architect, about 1850.

After 1834, when Schinkel struck the keynote of the true use of material, quite a long period elapsed ere he was followed by architects as a body; but about 1859 the Town Hall was built of brick and terra-cotta; and although Italian Gothic in style, yet it is an admirable building in its mass, detail, and excellent use of material. Other buildings soon followed, and at the present time practically every building of importance shows the material of which it is built. The chief use of brick with cement facing at the present time seems to be for the street façades of dwelling-houses, which are commonly designed in the *art nouveau* style. In this case, however, there is some excuse for cement facing on the score of cheapness; but even in this class of building there is rarely seen that cutting of the cement face with lines to represent stone jointing which is the most objectionable feature of the use of cement-faced brickwork.

Having reached this stage in the treatment of the architecture of Berlin one cannot but refer to the great Technical High School at Charlottenburg, which is the development of the small Academy of Architecture already referred to. Here we have one of the best designed modern buildings in Berlin and district. It was opened in 1884. In this college, architecture is worthily represented by a teaching staff of eighty-nine, and is attended by 739 day students —figures which need no comment. We also find the importance of architecture recognised in the Aula, for in the spandrels of its ceiling there are admirable frescoes giving views of the Parthenon, the Colosseum, Laach Abbey, and other great works of architecture. The teaching appliances belonging to the architectural department in this college are excellent, and everything is admirably arranged for studious use by the young architect. The Beuth-Schinkel Museum is purely architectural. It occupies many rooms, in which are large models, designs, and studies by architects who were formerly pupils. For the study of old and historically important buildings in Germany and elsewhere there is the Callenbach Collection, from which models the students make sketches. Then there are the collections of casts, the large room containing excellent specimens of building stones, besides many models of practical construction which are in other rooms and corridors. By the thoroughness of the architectural course every effort is put forth to equip the student for his future work; and in considering the recent architecture in Berlin one cannot but observe the influence of the training received in this college on the design of recently completed buildings. A student after having passed through such a course ought to know how to use architectural forms correctly, and undoubtedly recent work (not of the *art nouveau* type) generally shows that this has been learnt—so much so, in fact, that it is "academic" in style. There are, however, buildings to be seen in which architectural forms have not been properly used. One instance will illustrate this point. In an otherwise excellently designed modern building in Berlin there are Greek Doric antæ or pilasters used in conjunction with Corinthian capitals on the adjoining columns. Such a use of dissimilar forms should strike a well-trained architect at once, and prevent the execution of a design in which they appear. No doubt, however, future designs will show a freer and altogether abler use of architectural forms than those to be seen at the present time.



THE EMPEROR WILLIAM MEMORIAL CHURCH, BERLIN, SHOWING ALSO BLOCKS OF HOUSES AT EACH END OF THE CHURCH BUILT IN THE SAME STYLE.

The influence upon the architecture of Berlin of the excellent collections of architectural casts and fragments of old work in the museums of Berlin should be also referred to here. The fine collections in the New and Pergamon Museums deserve special mention. One

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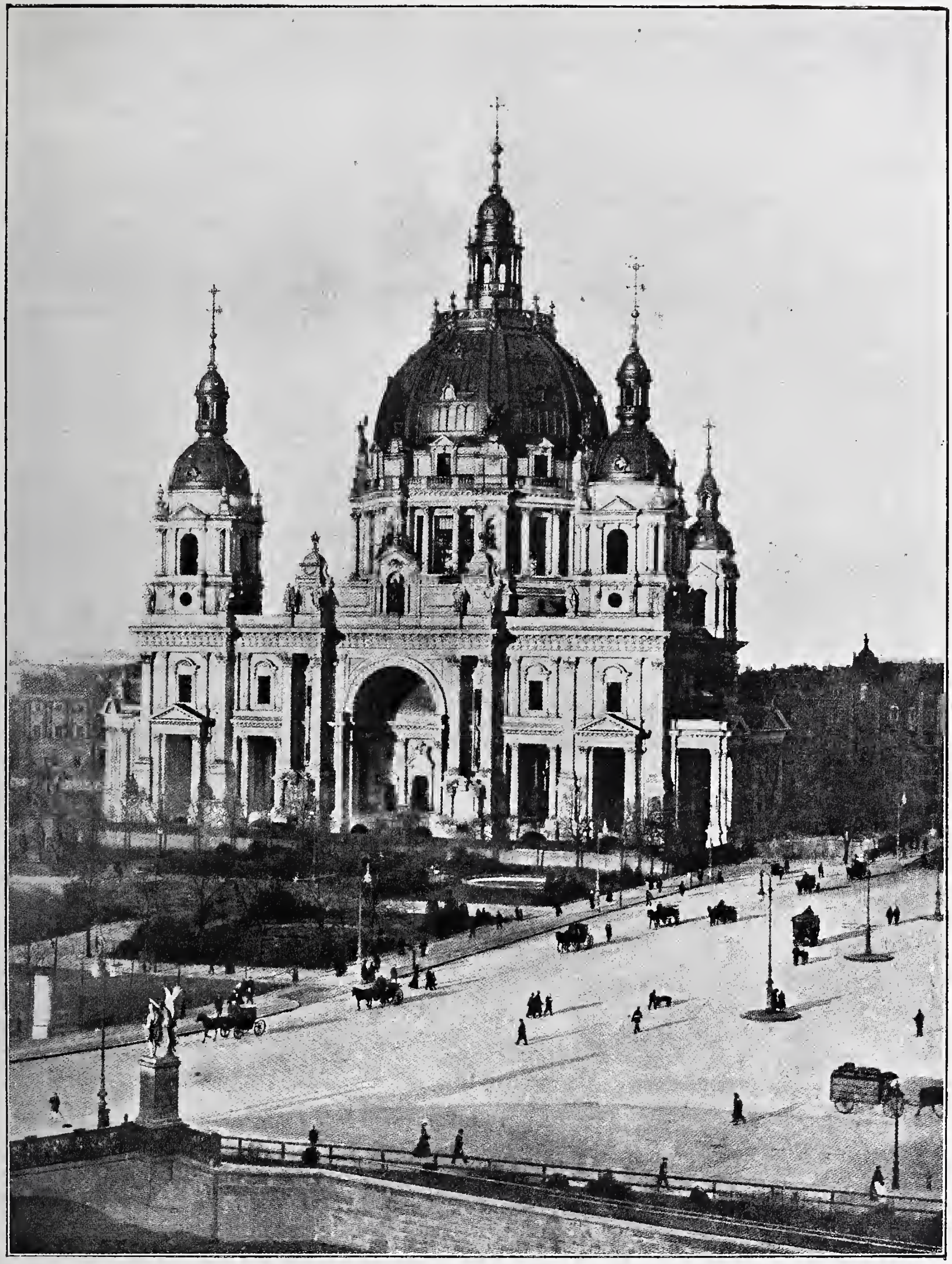
instance showing that these objects are studied is the treatment of the frieze of the main order of the exterior of the new cathedral. This has evidently been derived from a study of that which occurs in a corner of the entablature from the Temple of Trajan, Pergamus, now in the Pergamon Museum. In the frieze of this temple there are scrolls arranged vertically, springing out of two spirals and a central acanthus leaf, which rest directly upon the top of the moulding of the architrave. These scrolls occur directly under every modillion in the cornice, with sculptured heads between the scrolls. Now in the cathedral frieze there are similar vertical scrolls springing out of a cluster of three acanthus-leaves, and these are again placed directly under every modillion in the cornice. The sculptured heads which occur in the temple frieze have been rightly omitted in the cathedral one; but even there the vertical lines of the scrolls are disquieting in their effect. Such a treatment of the frieze makes the architrave appear thin.

In this description of a visit to some of the recently erected buildings in Berlin the New Cathedral (Dom), which has just been opened, naturally occupies the first place. This is a unique building because it consists really of three churches, which may be used separately or together. Under ordinary conditions this grand pile will be used simply as a cathedral. The cathedral church forms the central and main part of the mass; to the south-east of it there is the baptistery, and to the north-west the mausoleum. The plan of the whole is so admirable that one cannot think of a better solution to the very difficult problem of combining in one block three churches which had to be built together. Each church has its own entrance, yet the mausoleum and baptistery may be entered directly from the cathedral. The main front is to the south-west, and here we find what is probably the finest piece of architectural design in the whole building—namely, the magnificent porch which extends on each side of the main entrance sufficiently far to include the royal entrance in the one direction and the entrance to the mausoleum in the other. Standing under the large central arch and looking either way the effect is splendid. The entrance to the cathedral is in the centre of this front, and this is emphasised in the elevation by an arch of wide span. Directly opposite the main entrance in the interior is the deep apse containing the altar. The plan of the cathedral church proper may be said to be that of a Greek cross with comparatively small arms, which have galleries in them. The central part, which really forms the church, is a circle of fully one hundred feet in diameter, having four deep recesses, thus giving a nearly square area. This circular portion is covered by a great dome, which forms a prominent feature in many views of Berlin. The dome is crowned by a lantern at the base of which there is a broad space all round which could accommodate quite a number of people. This broad space prevents the base of the lantern from being seen, and has evidently influenced the design of this part rather prejudicially. Arrangements have been made by stairs and otherwise in the construction of the dome to allow of visitors ascending for the sake of the view, which, owing to the flatness of the site of the city, is of considerable extent and varied interest. Many of the small turret stairs and those for the public in the main building are of iron, having wooden treads screwed to the iron parts. These wooden treads are to be covered with linoleum, and the outer edging of the tread is to be of brass.

The mausoleum in plan may be said to consist of a rectangular part about the same size as, and attached to one arm of, the cross of the cathedral church, having a semicircular part forming its other end, round which are arranged five either square or elliptically planned chambers for the memorials. The entrances to these chambers from the central part are enriched with pilasters at the sides which are of marble, but have sunk panels in which onyx about one centimetre thick is in some cases used for the panel. In the interior a stair, opposite the entrance from the exterior, leads down to the very large crypt. The baptistery



THE NEW CATHEDRAL BERLIN ENTRANCE FRONT

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is not large, being about the size of one arm of the cross of the cathedral church, but it has quite complete arrangements of its own.

The base of the entire building is of grey granite, above which an excellent yellow sandstone from Silesia is used for the whole building, the backing being of brick. The lower diameter of the larger columns on the main front is fully five feet, while that of the smaller ones on the same façade measures nearly four. The inner dome of the cathedral church is of brick and concrete covered with plaster mouldings and mosaic panels internally. The outer dome or covering of the inner one rests on a braced steel structure. (There is a considerable space between the two surfaces which are not concentric.) Upon the steelwork the wooden purlins rest. Then two layers of boarding, each $1\frac{1}{4}$ inches or more in thickness, are laid crosswise over the purlins and across one another at right angles. Upon this the copper covering is laid.

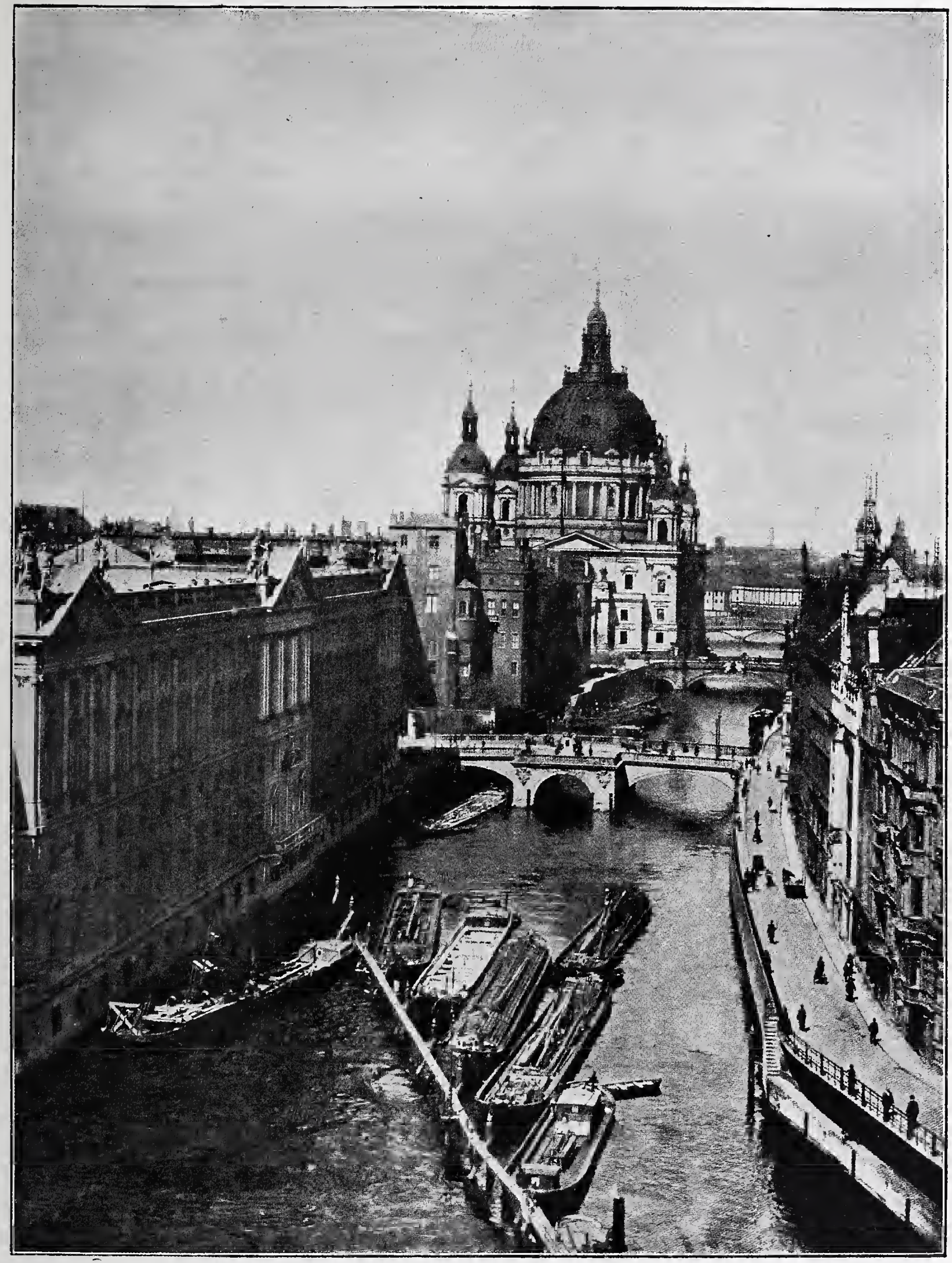
The domes of nearly all the public buildings of Berlin are covered with copper, and also the spire of the Town Hall. In Berlin the action of the weather upon the copper is to give it the beautiful green colour we see on roofs covered with copper in our own country districts, and the colour effect is quite delightful, as there are so many domes in Berlin. In our cities the action of the atmosphere upon copper roofing is to give it so dark a colour that the copper can hardly be distinguished from lead after a few years.

Not only is the large dome of the cathedral covered with copper, but this material is used as the roof covering for the whole building, including the lantern of the large dome, the smaller domes, and all the flat roofs, and even the cornice weatherings are covered with it. The thickness varies according to its position from $\frac{1}{7}$ to $\frac{1}{12}$ centimetre. The copper is in sheets and is all welted together, not brazed. The vertical welts stand up fully $\frac{3}{4}$ inch, while the horizontal ones are flat.

The bronze statues on the exterior are of beaten metal, not cast. Many different marbles are used throughout the building both for structural support and decoration. The internal finishings are largely of oak. Much of this woodwork is curved, and instead of cutting the curved parts out of the solid, these are bent in $\frac{1}{4}$-inch thicknesses to the required curve, as laminated ribs are done, glued together, and then moulded as required.

The architect, Professor Julius Carl Raschdorff, is the Professor of Italian and German Renaissance and Design in the Royal Technical High School at Charlottenburg. Professor Otto Raschdorff, his son, acted as his chief assistant both on the cathedral works and at the Technical High School, where he is also Professor of Architectural Perspective. To Professor Otto Raschdorff the writer is indebted for his kindness in conducting him over the entire building and for the information regarding it he received from him. Another matter of great interest, and most instructive for the British student, is the admirable series of models, made to various scales, of the whole and of portions of the building, as well as full-size models for the details. These scale models are to be kept in some of the upper rooms of the new cathedral, just as the models for St. Peter's are kept in Rome.

The structural part of the Emperor William Memorial Church was completed in 1895, but its internal decorations are not yet finished. The style of the church is Late German Romanesque, and the plan is admirably arranged for the Lutheran service. It is a Latin cross with a deep polygonal apse at the east end for the altar. The crossing is nearly 70 feet square and has a domical vault based on an octagon of four large and four small sides, but this does not show externally. The chief external feature is the great western tower which stands above the memorial vestibule. This vestibule is a spacious hall at the main entrance: it is barrel-vaulted, but the decorations are not yet in position. This spire is 370 feet in height, and is the loftiest in or near Berlin, being even higher than the lantern at the top of the



PICTURESQUE VIEW OF THE NEW CATHEDRAL.

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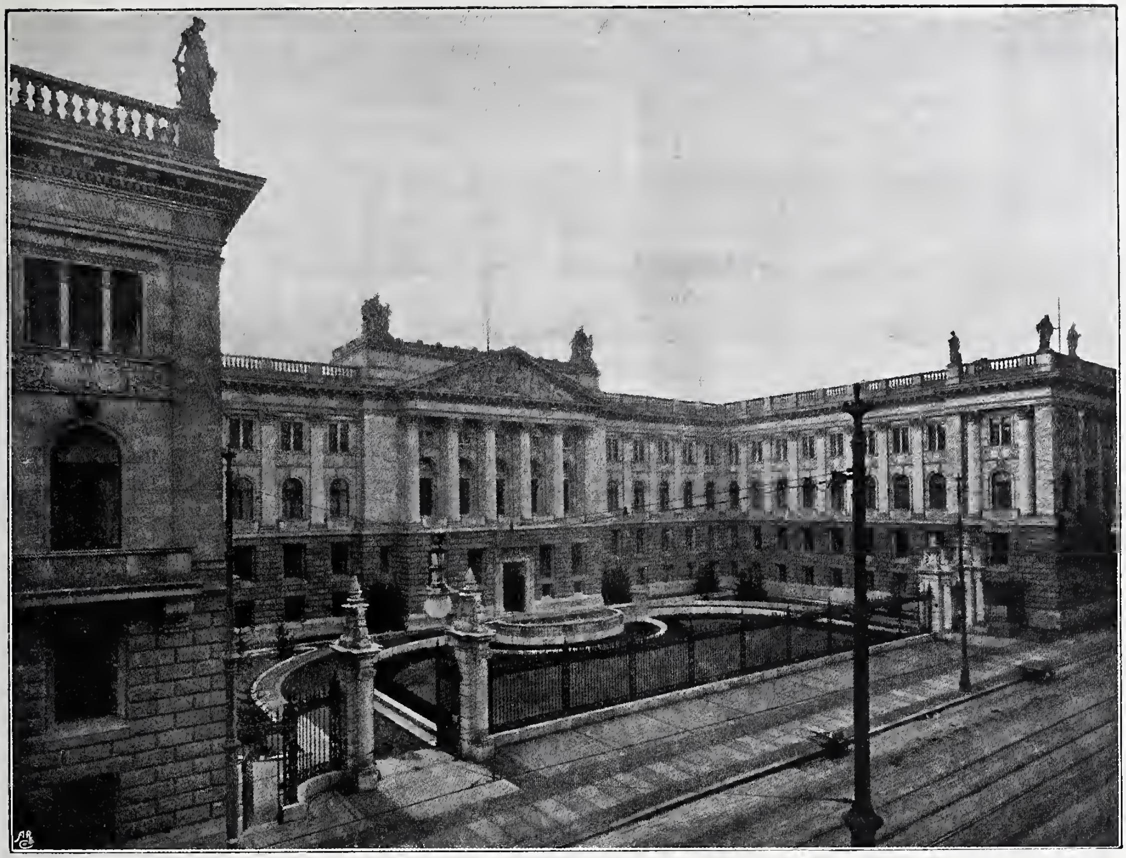
cathedral dome. There are four smaller spires which, besides the large one and the whole church, are built of stone. The architect was Herr Franz Schwechten. The site is surrounded by streets, thus forming an island; hence it is seen on all sides. The blocks of buildings opposite the east and west ends of the church have been carried out in the same style, giving a very harmonious effect to the whole.

The Gnaden Kirche is a very fine composition in the Romanesque style both internally and externally. The plan is also a Latin cross, and the whole church is vaulted. There are stone pillars and arches, but the spandrels are finished in plaster and painted. The spires are slated with dark-coloured slates. The mass externally is grand, and the church is fortunately situated, as its site is a small public garden with trees. The detail of the stonework has been excellently carried out.

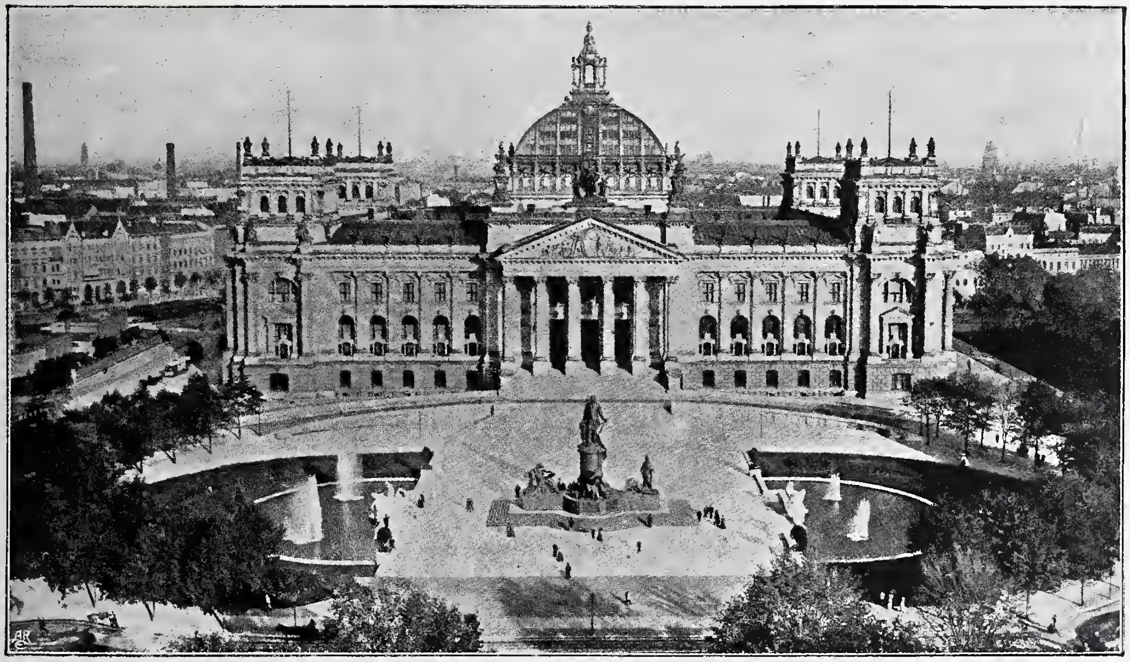
Two recently completed buildings, naturally compared with one another by an architectural visitor, are the Imperial Houses of Parliament (Reichstagsgebäude), of which Herr Paul Wallot was architect, and the Prussian Upper and Lower Houses, of which Herr Friedrich Schulze was architect. The former building is grandly situated on a corner of the Tiergarten, and faces the Königsplatz. It is externally very richly decorated in a modernised Italian Renaissance style, distinctively German in its character. It expresses perfectly its purpose, for no one would take it for any other type of building than Houses of Parliament, but more refinement might have been shown. The plinth is of grey granite, but the building generally is of Silesian sandstone. The projection of the rustication from the wall face on the lowest story is eight inches, which is too great even for a building of this size and style. The interior is much more satisfactory in this respect, as a measure of restraint has been exercised in it. There is much stone vaulting in the interior, but there is also a great deal of brick vaulting which is either plastered and painted or left in a state to receive mosaic. Silesian stone is again used here, but Istrian limestone is very largely used for the walls, the vaulting, and the sculptures. The materials used are nearly always solid, one exception, however, being the use of scagliola in place of marble, in the diplomats' rooms. Altogether the solidity of construction, coupled with the necessary richness of detail for a building of this nature as carried out in the interior, impresses one very favourably.

Of the Prussian Houses of Parliament the Upper House (Herrenhaus) faces the Leipzigerstrasse, and the Lower House (Abgeordnetenhaus) the Prinz Albrecht Strasse. Both façades are dignified in manner, with much less ornament than the German Houses externally. Their design is so quiet and restrained that a British architect would probably on that account say that they were the two best designed of the recently erected public buildings of Berlin. The interior of the Lower House is simple in its effect, without excess of enrichment in any part that one could object to. This building appears to be well planned and to have been carried out at a moderate cost. Scagliola is largely used for columns, surbases, dadoes, &c. in place of marble.

On a triangular piece of land, bounded by the two arms of the Spree on each side and by the City Railway on the third, stands the new Emperor Frederick Museum, which is of exceptional interest to architects both on account of the building and of its contents. It is excellently planned for its purpose. In plan it is triangular, and in the centre of the triangle there is a hall which is a close copy of the Church of San Salvator del Monte, by Cronaca, at Florence. No better planned building could have been selected for reproduction in order to display old Italian altars and similar pieces of art work in its recessed bays. For the interior of this part a nice yellow-coloured stone from the Pfalz, Palatine, has been used. Throughout the building old stone doorways from Genoa and other parts of Italy have been built in as part of the structure, and serve as the actual doorways to the different rooms internally. This



UPPER HOUSE OF THE PRUSSIAN HOUSES OF PARLIAMENT, BERLIN.



IMPERIAL HOUSES OF PARLIAMENT, BERLIN.

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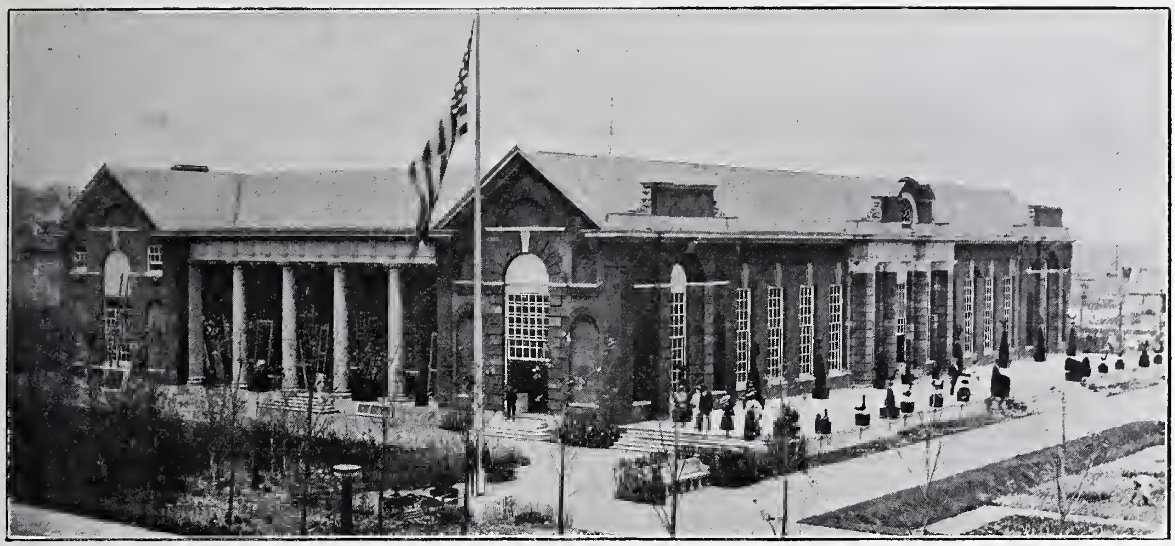
forms an interesting feature in the museum. The building consists of three main floors: the ground floor is devoted to collections of coins &c.; the first floor to sculpture, architectural fragments, mosaics, carved works in stone and wood, &c.; then the second floor has a top light and is for pictures. The outer façade is all of Silesian sandstone. The large dome over the staircase is composed of outer and inner shells, both being of brick. Its diameter is 17 metres. The copper covering is laid upon boarding which is placed directly upon the outer brick shell. There is no wood about the floors or the roofs. The floors are of rolled steel joists placed at one-metre centres and have brick arches between them. The lighting of the picture galleries is perfect. There is a flat inner roof in which glass is put to diffuse the light which passes through a roof light in the outer roof. The glass in the outer roof light is wire-glass, the mesh is about $\frac{1}{4}$ inch, and the wire is small. There is a considerable space between the outer and inner roofs which is all painted pure white, and proper arrangements have been made for cleaning the glass on the flat inner roof from this space. All the picture galleries are lined with non-inflammable wood, then covered with scrim, and finished with some covering such as tapestry. The architect is Herr Ihne, and to the architect for the construction of the building, Herr Hasak, the writer is indebted for conducting him over the works and for the information he so kindly gave.

To judge from the present-day appearance of Berlin it is evident that within the past thirty years the city has been beautified to a greater extent than any other in Europe during that time. There is no sign of satisfaction as if the highest point had been reached, but rather the impression that further advance on present lines is sure to take place. Berlin as a modern city, compared with Paris and Vienna, must now rank with them as a most beautiful city because of the very fine colour effect of the whole. All who are interested in the improvement of our cities in Great Britain may well visit Berlin. When they do so, they will be struck with the admirable setting-out of the city, its buildings and its parks.



THE BRITISH PAVILION, ST. LOUIS EXHIBITION. DESIGNED BY MESSRS. ERNEST GEORGE & YEATES.

SOME IMPRESSIONS OF THE ST. LOUIS EXHIBITION, 1904.

By H. Phillips Fletcher [*F.*], *Godwin Bursar* 1904.

Lecture (illustrated by lantern slides) delivered before the Royal Institute of British Architects, 6th March 1905.

As perhaps you are all aware, the "World's Fair" at St. Louis last year was held in commemoration of the purchase of the Louisiana Territory from Napoleon in 1803. As you will see from the map, this territory is a vast wedge-shaped tract of land situated midway between the Atlantic and Pacific Oceans, and extending from the Gulf of Mexico to the Rocky Mountains. Its area was over one million square miles, and it belonged to France by right of discovery and exploration. The United States Government paid Napoleon the Great the sum of fifteen million dollars for this territory, which amount works out at about five dollars per square mile.

Although the rateable value in 1901 was over one thousand three hundred and twenty million pounds sterling, yet at the time of the purchase there were many who predicted that it would be the ruin of the nation, and one Josiah Quincey went so far as to say it "would justify a revolution"!

In 1898 a committee was formed for the inception of the Exhibition, and it was decided that it should be the largest ever held in the world's history. A capital of fifteen million dollars—the same amount that was originally paid for the territory—was raised, and this amount was considerably added to later. The total cost at completion has not yet been published, but it must have been at least fifty million dollars, or over ten million pounds sterling.

The site chosen for the Exhibition was a good one, being situated on the western limits of St. Louis. The view exhibited on the screen shows the desolate waste of the Forest Park during the preliminary clearing operations some two and a half years before the opening of the Exhibition. It embraced a considerable portion of what is known as Forest Park and some adjacent lands, notably those belonging to the Washington University (which buildings were then in course of erection) and a piece of land known as the "Catlin Tract." Here the amusement concessions were located. In all there were over 1,240 acres, 250 of which were roofed in. The official measurements were two miles long by one mile broad, which included an area greater than the total of those of the Chicago, the Buffalo, and the last Paris Exhibitions. The objective of the authorities was to demonstrate the resources and industries of the different countries of the world, together with their progress in civilisation, and to give a retrospective view of their development.

The general scheme of the plan was designed by a committee of American architects (amongst whom were such well-known men as Cass Gilbert, Carrère, Hastings, Eames, and Link), and on plan it resembled a lady's open fan. The centre of the picture and what may be likened to the handle of the fan was the festival hall situated on the top of a hill. This was designed by Mr. Cass Gilbert in front of his permanent Arts Building, which was thus excluded from the main scheme. The reason for this was that the latter was built of buff brick which did not harmonise well with the ivory white of the Exhibition buildings. Flanking the Festival Hall on either side was the Colonnade of States, formed in a crescent, with a Restaurant Pavilion at each extremity. The face of the hill in front of these central features was terraced, and three series of cascades discharged ninety thousand gallons of water per minute into the grand basin at the foot. From the hill as the focal point, and radiating like the ribs of the fan, were three main avenues, and a grand transverse avenue crossing these gave the general outline to eight of the main exhibit buildings.

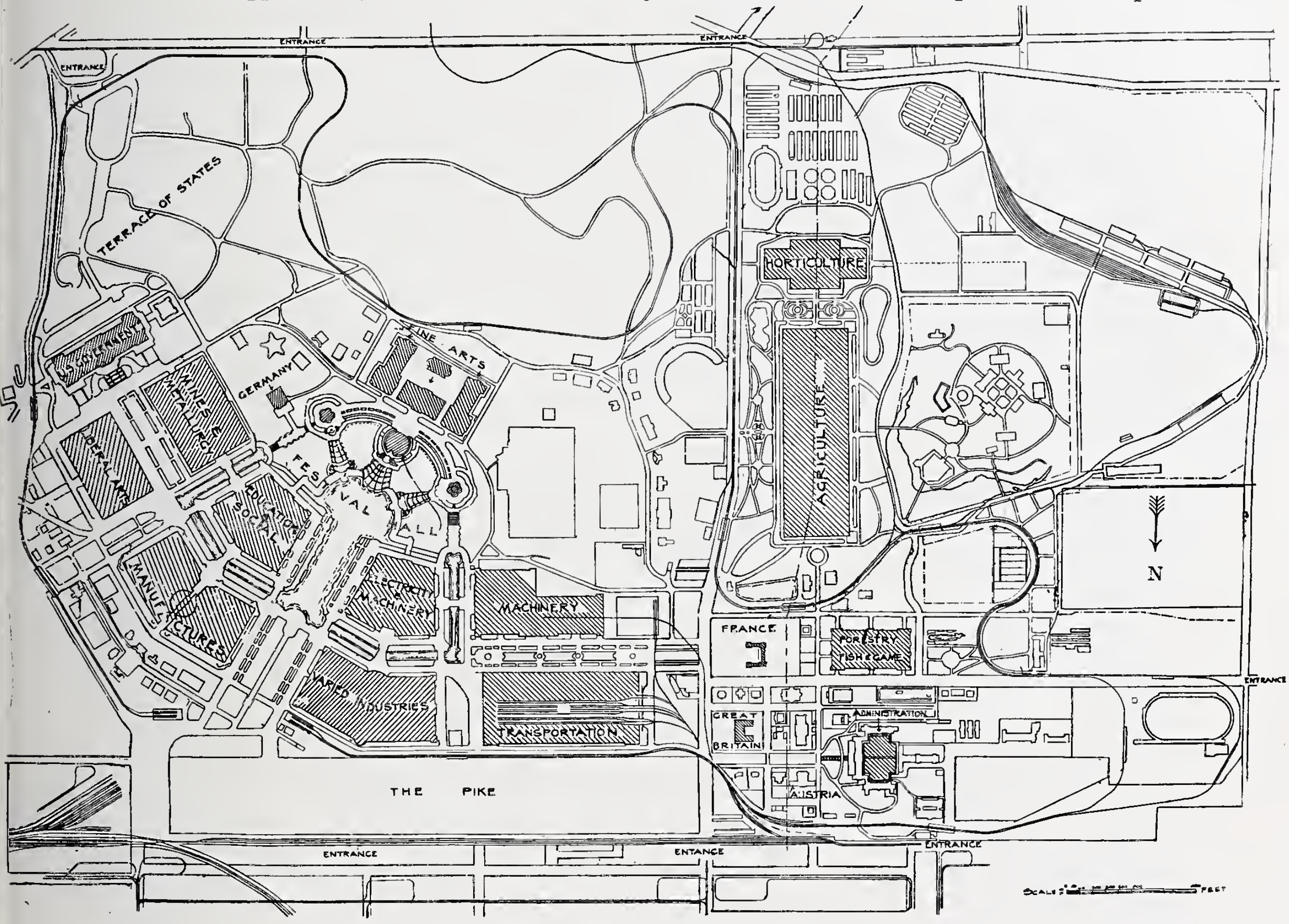
ENGINEERING.

Before describing the buildings a few words about the construction may be of interest. A great amount of engineering work had to be executed before the site was ready for the buildings. Hills had to be lowered and valleys graded, and an artificial lake had to be drained and piled over; while a river, known as the "Des Pères," had to be boxed in a "flume" 45 feet wide by 15 feet deep. The roads were covered with burnt ballast, gravel, macadam, asphalte, and brick. A total area of 5,800,000 square feet was paved, and taking this at an average of 25 feet for the width of the roads, the total length of these works out at about 55 miles. All the kerbing throughout was of oak, 10 inches by 3 inches in thickness. The cascades and lagoons were built of timber, the central cascade being designed for a flow of 55,000 gallons per minute. The bridges were constructed on a standard plan. This consisted of a simple arch system of 3-inch by 14-inch timbers for the top and bottom chords, with a solid web of two courses of 2-inch by 12-inch planking. At the centre, where the head-room for passing boats did not allow of the use of this truss, 3-inch by 16-inch joists were substituted, and were skilfully connected to the main trusses. The power for the Exhibition was supplied by water-tube boilers of the Babcock & Wilcox, Heine, and Cahall types, and these were all placed in a fireproof building. Refuse destructors were installed in one portion of the grounds for the disposal of garbage and combustible débris.

CONSTRUCTION.

The construction of the main exhibit buildings was under the control of the Division of Works, and it was decided to erect these in timber partly owing to the then congested state of the steel market and partly to save expense. Long leaf yellow pine was used for all posts, framing, and roof trusses, and Mr. Markmann, the chief mechanical engineer, by the use of timber in lieu of steel estimated an economy of 30 to 50 per cent. The salvage of the timber, after the buildings were handed over to the wreckers, would amount to much more than that of iron or steel. Not only was there great economy in the construction, but there was great facility in the erection. These buildings were mostly on spread footings, timber cribbing, or pile foundations, according to the nature of the ground. The main walls were constructed of a double framing of timber posts, heads, cills, struts, and studding to a thickness of 2 feet. The columns and other features were also of a timber framework to the approximate shape required. Expanded steel sheets were nailed upon the wood, and fibrous plaster, technically known as "staff" in the United States, was then applied.

The timber roof trusses were mostly of the Howe type, the largest span being 105 feet, and were supported by timber columns. Many of these latter were composed of three posts with two sets of packing pieces between, all of which were bolted together, and further strengthened with rows of white oak keys. These keys were circular, 2 inches in diameter, and were driven into holes bored after the timbers had been bolted together. After the keys had been driven home the bolts were tightened up. The English method of using a pair of wedges, thus forming a square key, is preferable, because they can be always tightened up; whereas the circular keys I have just described could not be tightened, and in some cases they fell out and damaged the exhibits beneath. However, the adoption of the circular keys was perhaps justified, since there was a great saving in expense; uniformity was insured by boring the holes with augers worked by compressed air. Internally the buildings were intended to be finished in plaster, but this and much of the colour scheme for the exteriors had to be omitted owing to the lack of funds. The lighting of all the main exhibit buildings was chiefly



THE ST. LOUIS EXHIBITION 1904: PLAN.

effected by means of skylights, clerestories, or lanterns, the latter technically known as "monitors" in the United States. The height of the cornice level for the main exhibit buildings was fixed at 60 feet from the ground; and if this is borne in mind when looking at the views, one can readily imagine the enormous size of the buildings. Having now dealt briefly with the engineering and construction, we will proceed to consider the central features and the main exhibit buildings.

THE FESTIVAL HALL.

To commence, then, let us glance at the central features, namely, the Festival Hall and Colonnade of States, which formed the *clou* of the plan. The Festival Hall was circular, being 195 feet in diameter, with a large rectangular annex containing the stage, organ, accessory dressing-rooms, and offices. There was a large auditorium covered by a dome 90 feet in diameter, and a promenade was provided. There were also a gallery and a promenade constructed above that on the ground floor level, and tiers of boxes were skilfully constructed in the piers. Altogether seating accommodation was provided for 3,500 people, and tip-up seats were generally employed on the ground floor and the first four rows of the gallery, while ordinary chairs were used for the remaining rows. The treatment of the interior was kept very simple, and depended solely on the large dome and lantern for effect. Externally this building was very ornate, as was no doubt fitting for the focal point of the Exhibition. The engaged Ionic columns of the circular colonnade were some 43 feet in height and rested on a podium 16 feet in height. These columns were well modelled and were surmounted by an entablature and parapet decorated with vases. The dome, which was the crowning feature, rested upon a drum, 140 feet in diameter and two stories in height. The upper story was pierced with *œils-de-bœuf*, which were very effective when viewed from a distance. The deeply recessed northern entrance, with its crowning group of statuary, was imposing, although it was not visible from most positions owing to the statue of Liberty at the head of the central cascade being placed immediately in front of it. The cost of this building was about £53,000.

COLONNADE OF STATES AND RESTAURANT PAVILIONS.

The Colonnade of States and Restaurant Pavilions were designed by Mr. E. L. Masqueray, the Chief of Design, and his treatment was very successful.

The Colonnade of States was an ornamental screen, 52 feet in height and one quarter of a mile in length, which formed a background to statues symbolical of the twelve States and two Territories included in the Louisiana purchase. This colonnade connected the pavilions and the Festival Hall architecturally, giving unity of feeling to the whole. The pavilions were over a hundred feet in height, and were well-proportioned, though perhaps a little over-elaborated. From some parts of the grounds an ugly gap appeared between these pavilions and the colonnade, and it might have been better if these had been more closely connected.

CASCADES AND GARDENS.

The cascades, which I have already mentioned, were designed to eclipse those of St. Cloud, near Paris, and were claimed to be the largest in the world. The central cascade emanated from the Fountain of Liberty, immediately in front of the Festival Hall. A great statue of Liberty lifting the veil of Ignorance and protecting Truth and Justice towered above. The two cascades in front of the Restaurant Pavilions were symbolical of the Atlantic and Pacific Oceans, which form the eastern and western boundaries of the United States. The spaces between the cascades were laid out in gardens having broad lawns covered in verdant green, which afforded a much-needed rest to the eyes.

U.S. Government Building.

The United States Government Building, measuring 750 feet long by 250 feet wide, was situated at the eastern extremity of the Grand Transverse Avenue. It was designed by Mr. James Knox Taylor, the supervising architect of the Treasury Department, and its general style was Neo-Classic, somewhat less festive than the other Exhibition buildings. The central entrance portico, of coupled Ionic columns, was connected to end pavilions by a colonnade of the same order. Access to the building was obtained by means of a great central flight of steps, 100 feet wide, and two smaller flights, each 50 feet wide, towards the extremities of the principal façade. These flights of steps were connected with each other by ramps, 30 feet wide, which led by a gentle incline from the grounds to the terrace level of the building. A feature of the roof was the dome, some 93 feet in diameter, which was similar in general proportions to the dome of the Pantheon, Rome. A large quadriga surmounted this feature, and in the attic were sculptured figures, symbolical of the Republic and the arts of peace. This building was an exception to the other large Exhibition buildings in that it had no columns internally, being spanned by a steel roof. The cost was about £73,000.

Sunken Gardens.

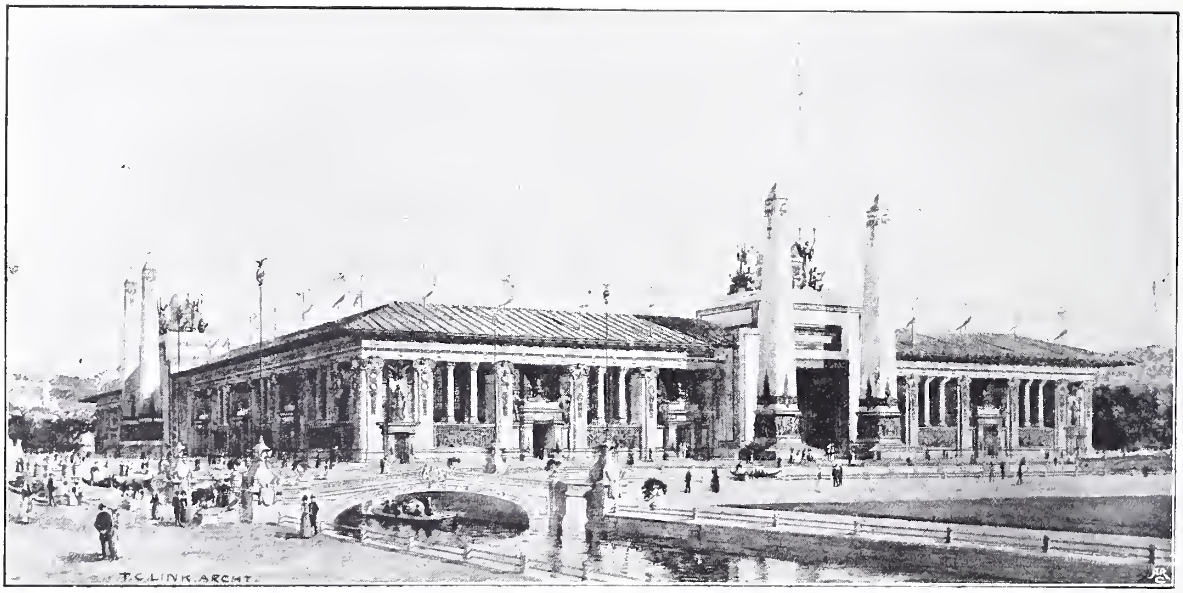
In front of the building just described, and in the Grand Transverse Avenue, was a sunken garden tastefully laid out, and the slope of the hill upon which the United States Government building stood was laid out in formal beds.

Main Exhibit Buildings.

We will now briefly deal with the main exhibit buildings. At the outset mention may be made that there were no galleries in any of these. They were all designed by individual members of the Commission of Architects appointed by the Exhibition authorities. These architects were responsible only for the façades of the buildings, the construction being carried out by the Division of Works. This system of dividing the design and the erection of buildings appears at the present time to be obtaining some foothold in the States. I think every architect of standing in the country will agree with me that the most deplorable results will ensue if this idea is to be continued. The very name "architect" implies that he is the "chief workman," and he alone should be responsible for carrying into effect the ideas that emanate from his brain. Moreover, if an architect is to be merely a sketcher on paper, he can in no sense "design in beauty" and "build in truth," because he has not the necessary technical knowledge of the materials and craftsmanship which will enable him to treat his subjects with economy and sympathy; so that not only will untruthful buildings be erected under this system, but the client's pocket will suffer. When visiting the Taj Mahal at Agra last year I heard an anecdote about the architect Austin de Bordeaux, who is reputed to have designed this royal mausoleum. When the building was completed Shah Jehan proposed cutting off the right hand of Austin, so that he should never design another to equal the royal tomb; whereupon the architect exclaimed that he had better be decapitated, since it was the brain, and not the hand, that designed. It is altogether starting from the wrong end. An architect who is worthy of the name must first of all study the materials he has to deal with, and learn their capabilities.

MINES BUILDING.

Let us commence at the eastern end of the Grand Transverse Avenue and proceed westwards, noting the buildings on the north and south as we go. The Mines and Metallurgical Building is the first to claim our attention. It was designed by Mr. Theo Link in a somewhat original manner, suggestive of the subjects which were to be housed, and was one of the coolest buildings on the grounds. A loggia surrounded it on three sides and a great overhanging roof was employed, the eaves of which projected 18 feet from the face of the structure. Obelisks flanked the central entrances on the northern and western façades, but were placed too close to the building. The reason for their introduction was that they represented the great mining (quarrying) feats performed by the Egyptians thousands of years ago. This building was an ingenious mixture of Egyptian, Grecian, Byzantine, and Italian features. As regards its size, it was 525 feet by 750 feet, and covered an area of about nine acres, the cost being about £110,000.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MINES AND METALLURGICAL BUILDING. DESIGNED BY MR. THEO LINK.

LIBERAL ARTS.

Next in order comes the Liberal Arts building, which was another "nine acre" building, 525 feet by 750 feet. It was designed in a modified form of Louis XVI. style, adhering closely to classic lines. The Roman, Doric, and Corinthian orders were employed in the façades. The most prominent features were the central and corner entrances, which were raised considerably above the connecting colonnades. The introduction of the circular domed pavilions at the angles between the corner entrances produced a variety of treatment and an effect of sky-line that was, perhaps, somewhat restless, but giving prominence to the entrances.

EDUCATION BUILDING.

The Education building occupied an important position on the eastern side of the Central Avenue, or Plaza of St. Louis, as it was called. The lagoons which surrounded it added to the advantageous aspect of its situation. This building had an internal court, which, however, was roofed over owing to the demand for more space for exhibits. In almost every great exhibition open courts have to be eventually roofed over, and in future it would be advisable not to count on them as an architectural feature. Altogether the building occupied about nine acres. This structure had a break in its northern façade the awkwardness of which was overcome by the central entrance being placed at that point, and the colonnade on either side abutting against it so as to form obtuse angles—a simple and effective treatment. The cost was about £75,000.

The Manufactures Building.

The Manufactures building also occupied an important position in the main scheme. It had an internal circular court, which was partly roofed over and used for exhibits, thus sharing the same fate as the court to the Education building. The Corinthian order was again employed, and a finely modelled cornice was carried completely round the building. The massive arched central entrances were imposing, each being surmounted by a well-modelled quadriga. The whole building had almost its full complement of statuary, and was raised on a stylobate of steps, which added to its dignity. It was designed by Messrs. Carrère & Hastings, and was well detailed throughout, being worthy of the great reputation of this firm, who are now engaged in building the New York Public Library and in extensive alterations and additions to the Capitol at Washington. This structure was the most costly of the main exhibit buildings, its cost being about £144,000.

The Louisiana Purchase Monument.

The Louisiana Purchase Monument was situated in the Plaza of St. Louis, at its intersection with the Grand Transverse Avenue. This position was rather unfortunate, as it interrupted the view towards the Festival Hall from the northern end of the Plaza. The shaft of the monument was 125 feet high, and was surmounted by a figure of Peace inviting the nations of the world to friendly competition at this World's Fair. At the base were groups of statuary symbolical of the Mississippi and Missouri Rivers, which are the great highways utilised in the extensive lumber trade of the United States.

Mention might here be made that the sculpture of the Exhibition was designed on a magnificent scale, thus setting off the vast buildings. Historical groups and figures lined the main avenues leading to the Festival Hall, while the Colonnade of States, as already mentioned, contained effectively treated allegorical figures of the States and Territories included in the Louisiana purchase.

Electricity Building.

The Electricity building occupied a position on the other side of the Plaza of St. Louis corresponding to the Education building. The Corinthian order was employed throughout externally, the cornice being richly decorated and supporting balustrades. The four main entrances were emphasised by raised triangular pediments, and the corner pavilions were made prominent by towers crowned with sculptured groups illustrative of the wonderful discoveries of electricity. This building had an internal court which was not interfered with to any great extent. I might add that this building was one of the best ventilated in the Exhibition. Its cost was some £85,000.

The Varied Industries Building.

The Varied Industries building corresponded on plan to the Manufactures building, and was situated on the opposite side of the Plaza of St. Louis. It formed a pleasing contrast to the other, however, the Ionic order being employed. The break in the southern façade had a free-standing screen of Ionic columns with a semicircular sweep outwards, the entrance being slightly recessed behind it. This was a happy treatment which disguised the awkwardness of the break. There were two internal courts to this building, but as in other cases these were built over to a large extent: £142,000 was spent on this building, so that, with the exception of the Manufactures building (£144,000), it was the most costly of all.

Machinery Building.

The Machinery building was easily distinguishable from the other Exhibition buildings, being remarkable for the height of the towers at the angles. The main entrance on the northern façade was flanked by massive and lofty towers of similar treatment to the angle ones, but with the central portion elongated. The façades had an arcaded treatment, and the Corinthian order was used. This building gave one the impression of having been designed in parts without sufficient regard to the whole. Its cost, without the sculpture, was £110,000.

Transportation Building.

The Transportation building was the largest in the main scheme as laid out by the Committee of Architects, being over fifteen acres in extent. This building had a distinctive character which was suggestive of the purpose for which it was used. For instance, the carrying capacity of the great arches gave at once the impression of strength and the idea of transportation. The style of architecture employed was a free adaptation of the Louis XVI. period. Four miles of tracks were provided in this building for the display of locomotives, Pullmans, and cars of every description employed in modern times for the conveyance of passengers and freight. The cost approximated to £138,000.

Agriculture Building.

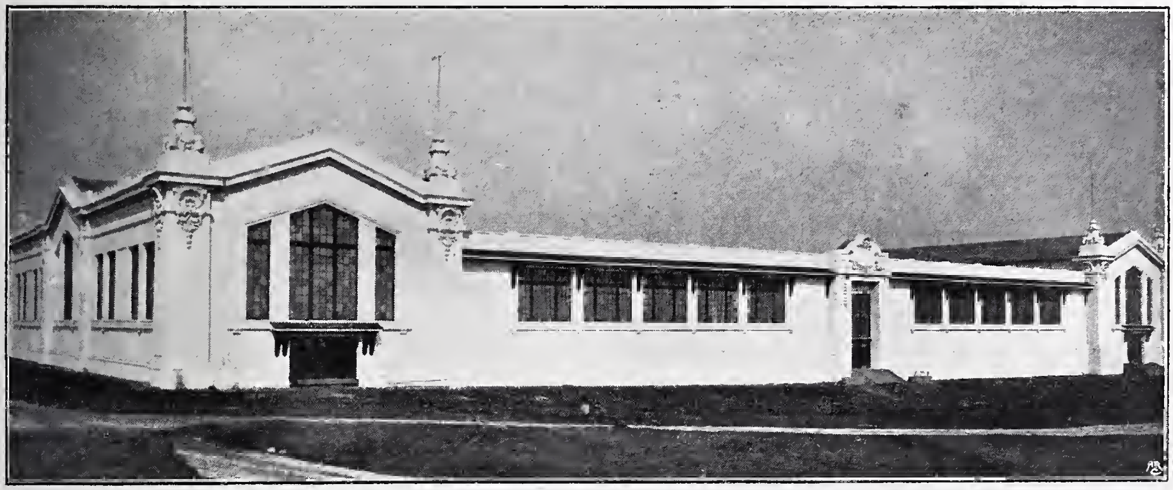
The Agriculture building was remarkable as being the largest on the grounds, covering altogether twenty acres. Indeed, no other building for housing a single department of exhibits has ever been built of such vastness. One hundred and ninety-two columns, consisting of timber posts as already described, supported the roof trusses. When viewed from the sides, these presented a confusing number of vertical parts. However, the building was the best upon the grounds from an exhibitor's point of view, being easily subdivided into exhibit spaces, and it was well lighted. Externally the design was simple and well-proportioned, the main entrance being marked by great arched openings, crowned with ornamental sculpture and flanked by massive piers terminating in highly decorative flagstaffs. Although by far the largest building its cost was only £110,000.

Horticulture Building.

The Horticulture building had the same simple and effective treatment as the last described. The eastern and western wings were used for the housing of tropical plants. The cost of this structure was over £51,000.

Forestry, Fish, and Game Building.

The Forestry, Fish, and Game building was another which was simple yet effective in design. One half of the building contained forestry exhibits of the States and foreign Governments, and the remainder was devoted to fish and game. Notices were prominently displayed giving warning that the fish-ponds were not spittoons !



FORESTRY, FISH, AND GAME BUILDING. DESIGNED BY MR. E. L. MASQUERAY.

Administration.

The buildings utilised for administration purposes, the Division of Works, educational conferences, the anthropological exhibit, and various other purposes belonged to the Washington University. These, which were leased to the Exposition Company, are all permanent buildings. They were designed in what was frankly intended for the English Tudor style, but probably the designer had only a nodding acquaintance with the genuine old buildings of this particular style in our country. They were built in red granite with limestone dressings, and the east front of the block, used for administration purposes, presented a hard and unsympathetic appearance.

Washington State Building.

Of the many States' buildings I will only pause to mention that of Washington, which was unique. The great angle buttresses of timbers, 90 feet long and 24 inches by 28 inches thick, were not shores to a dangerous structure, though their appearance might justify the supposition. They were to display the balks of timber obtainable in this State, which are shipped in great quantities to all parts of the world. Externally yellow pine was used, while internally it was finished with the finer-grained wood grown in this region. A lift through the centre ascended to the belvedere, whence an excellent view of the grounds was obtainable.

Foreign Buildings : Japanese Pavilion.

The " Land of the Rising Sun " manifested that they were not a whit behind Western nations both with regard to the size and importance of their exhibits. When at the outbreak of hostilities with Russia the latter relinquished all idea of participating in the Exhibition, Japan promptly secured the space allotted to her European rival in arms, thus obtaining over 300,000 square feet wherein to exhibit the arts and crafts of her miniature kingdom.

French Government Building.

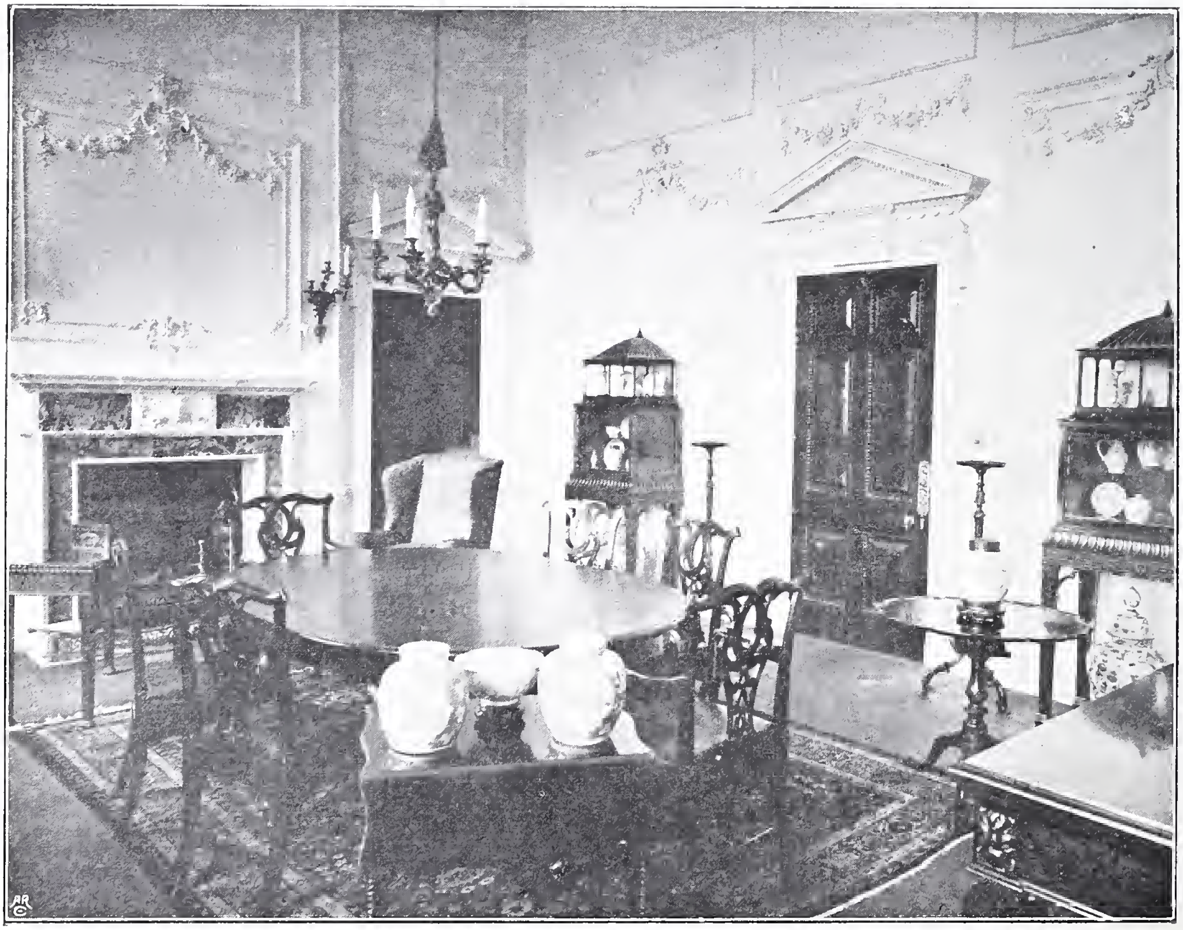
The French Government building was a replica of the Grand Trianon at Versailles, which was built by Louis XIV. for Madame de Maintenon from designs by Mansard. The building was spoilt by having badly painted columns externally to represent the marble of the original.

German Pavilion.

The Germans built their pavilion on the lines of the Castle at Charlottenburg, and the architect was very successful in reproducing the appearance of age by a careful toning of the "staff."

British Section.

The Royal British Pavilion worthily housed the representative of this country. The design of the Orangery of the Royal Palace at Kensington was the motif employed by Messrs. Ernest George & Yeates, and an interesting comparison could be made between the buildings



BRITISH PAVILION: INTERIOR. DESIGNED BY MESSRS. ERNEST GEORGE & YEATES.

NORTHERN ARCHITECTURAL ASSOC

representative of the three great nations of England, France, and Germany. It was the best built pavilion upon the grounds, the walls being of Portland cement on metal lathing. Indeed, Washington University made negotiations for its purchase as a clubhouse for the students. Col. Watson, R.E., C.B., C.M.G., was the British Commissioner, and he did everything in his power to assist those who visited the British Sections. He had the satisfaction of being the only commissioner who was able to report that, on the opening day, the whole of the sections under his direction were open for exhibition, and the catalogues ready for the public.

An idea of the fitting and furnishing of one of the rooms can be obtained from the view here given.

With regard to the various British exhibits in the main buildings we quite held our own, and the following awards were made by the juries to British firms :—

	121	Grands prix
	238	Gold medals
	162	Silver medals
	132	Bronze medals
Making a total of	653	medals in all.

This is rather refreshing in view of the pessimistic statements of so many public speakers, who apparently take such a jaundiced view of the efforts of British craftsmen.

With regard to the British Fine Art and Applied Arts Sections, visitors were agreeably surprised ; and everyone, including Americans, had to admit that in these sections, at least, the mother country was well ahead of all others. It was quite up to one's idea of what an art exhibition should be, and was fully representative. Amongst over a thousand exhibits in the Fine Arts Section there were works by the following :—Lord Leighton, Alma-Tadema, Burne-Jones, Millais, Orchardson, Poynter, Seymour Lucas, Brock, Goscombe John, Thornycroft, Aston Webb, John Belcher, T. G. Jackson, and Waterhouse.

The Applied Arts had over four hundred exhibits, and constituted a very varied and interesting collection. Mention might be made of the Amusements Concession, or the "Pike," as it was called. This was a street, about a mile in length, having many interesting side shows, in some cases of an educational value. Among other buildings there was a reproduction of Battle Abbey.

CONCLUSION.

The virility of the management was indeed well tested by the fact that over two hundred strikes impeded the progress of the buildings. Notwithstanding this, they carried out their enormous contracts within a period of less than three years. In comparing this wonderful Exhibition with previous great International Exhibitions the thought naturally occurs to one as to what may be learnt from this vast undertaking. This is more especially the case as, owing to the enormous financial loss entailed by the Exhibition, it is extremely improbable that people will again be found to invest their money in Exhibitions to anything like the extent that they did at St. Louis. It does occur to one that the waste entailed by the destruction of these buildings after the expiry of the Exhibition might somehow or other be obviated to some extent. The Washington University buildings and the Fine Arts building will remain, the latter being a permanent monument of the Exhibition ; but would it not have been possible to have designed some of the others for permanent public buildings, hospitals, or even factories, or in such a manner that they could have been altered internally for some such purposes ?

The Exhibition of the future will probably be organised for single and specific purposes, and not upon a large general scale. It was generally agreed by European critics that the Chicago Exhibition of 1893 was too vast an undertaking to be really satisfactory in all its details. How much more does this apply to St. Louis, which was double the size! The fatigue entailed in seeing the Exhibition was simply enormous, and the glare of the buildings rendered smoked glasses an absolute necessity. Even so the ambulance was kept steadily employed conveying prostrate visitors to the hospital provided for them. The fact is that each building alone was an Exhibition in itself. For instance, to see every exhibit in the Agriculture building entailed a promenade of over nine miles. If the original idea of the authorities had been carried out, galleries would have been constructed to all the buildings, and it is a tribute to the common sense of the Division of Works that these were omitted altogether. Perhaps one of the most surprising facts of all the wonders of the "World's Fair" was that, with all the inventive genius at the disposal of the American race, so few original architectural efforts were made. The architects of the Mines and Transportation buildings alone made any attempts at conceiving original designs. The first named received his education in England, and is practically a Britisher; the other is a Frenchman!

The Exhibition furnished an opportunity for experimental architectural work, as the results were to be torn down at the end of the year; yet so thoroughly has the "Beaux-Arts" captured American architects that none could get away from its influence, even in erecting a temporary building. It is curious that the dream and ambition of every architectural student in the States is to go and study his art in Paris. And this great fetish is carried to such an extent that a "Beaux-Arts" Society has been established in New York for such as have studied in Paris. It is, perhaps, quite true that nothing fundamentally novel in architectural design can be devised that would be satisfactory, but still merely slavish "copyism" should be strenuously avoided. We require no new alphabet to our language; but that is no reason why we should always express our thoughts in the set style of any particular book, however classic its rendering.

The one prevailing idea amongst Americans of all classes is to have, or to build, the "biggest thing on earth," and to claim it whether they have it or not. If they would impart a little more thoroughness and a closer study of detail into their ideas, a more complete and harmonious creation would be the result. As examples of what is meant, one may perhaps mention that the Model Street was execrably paved, the hospital was placed next to the vibrating automobile shed, and at one of the entrances to the Exhibition one was almost compelled to go on all-fours under a railway track to get to the turnstiles.

As a further illustration, one may perhaps mention that when living at the Palatial Club at St. Louis, where swimming baths, a ballroom, and other luxuries were provided, the façade, though imposing, was so designed that the bedroom windows could not even be reached by the hand, and the floors of some of the rooms were at different levels. Some of the bathrooms were unventilated, and in one case both taps were fitted to the hot-water supply. At the Washington Hotel the steam exhaust from the laundry practically discharged into my bedroom window, and none of the plumbing pipes were of sufficient diameter for comfort. Electric cars in St. Louis were prominently labelled for the Exhibition whether they were destined there or not, and the speed at which these travelled was accountable for a great number of fatal accidents.

Much accommodation was provided for visitors to the Exhibition, both in the Inside Inn, which was but indifferently appointed, and in hotels especially erected for visitors to the Exhibition in the City of St. Louis itself. These latter, however, were little patronised, as the number of visitors was enormously over-estimated.

It must be admitted, however, that destructive criticism of a vast undertaking like this is superlatively easy, and one was much impressed by the fact that every day could be seen earnest people taking notes of machinery and goods that would be useful to them in their business; and this was perhaps more especially apparent in the Agricultural building, where the intelligent farmers of the Western States studied improvements in plant, machinery, and methods of cultivation in a manner that would have astonished the tiller of the soil on this side of the Atlantic.

One cannot but admire the pluck, the genius, and the overwhelming energy that were bestowed on the Exhibition; many thousands of people were enabled to gain the most useful knowledge through its instrumentality.

DISCUSSION.

Mr. T. E. Collcutt, *Vice-President*, in the Chair.

Mr. HENRY T. HARE, *Vice-President*, said he had the greatest pleasure in moving a vote of thanks to Mr. Fletcher, whose Paper and remarks had afforded them all the keenest enjoyment. In England they had seen illustrations of some of the buildings, but they had never had an opportunity of becoming acquainted with and understanding the scheme of the Exhibition as they were able to do now after hearing Mr. Fletcher's explanation. One could not but give credit to the Americans for the extensive and wide grasp they gave to schemes of this kind. In England when they dealt with buildings for Exhibitions of this nature, they were apt to treat the matter from a much more parochial point of view, and it was very refreshing to see the large and comprehensive way in which the St. Louis Exhibition was treated. Mr. Fletcher had referred to the influence that Paris had exercised over the minds of American architects, and he had done so, he thought, in perhaps a rather depreciative sense. Of course one sympathised with the idea Mr. Fletcher had in his mind, that probably the influence of Paris had been so strong as to a great extent to kill any sense of originality in the design of these buildings; but that idea might be carried too far. The influence of the École des Beaux-Arts and of the Parisian feeling generally undoubtedly led to a very much larger and more comprehensive grip of a scheme of this sort than would be possible from the methods of training which obtained in England; and in that sense the influence of the French school was not altogether to be deplored. It was gratifying to hear that one of the most successful buildings of the Exhibition was designed by an Englishman. They could also congratulate the eminent architect of the English Pavilion on the success he had achieved in his portion of the Exhibition.

Mr. EDWIN T. HALL [*F.*], in seconding, said they ought first to thank Mr. Fletcher for the witty way in which he had treated his subject—for the evident powers of observation he had exercised in order to bring before them so graphically, not only the buildings themselves, but, so to speak, the motive of the buildings. They could not help feeling with Mr. Hare that the Americans think, not as the English think, in acres, but in continents; and when one saw a scheme of this tremendous size, one perhaps remembered the American architect who came here a couple of years ago to take the Royal Gold Medal when he told them he was designing an avenue as an approach to the White House which was 1,600 feet wide. It rather struck them at the time as considerable; but then Americans did evidently think in those dimensions; and what had astonished him in seeing the buildings was that, thinking in such huge dimensions, they had not rather imitated the Roman than the Paris architects. One was surprised to find that there was not something on the scale even of the Baths of Caracalla, or Hadrian's Villa, or some of the vast structures which ornamented Rome. One would have expected to have seen some vast vaults, some colossal structures; and it seemed strange that with such breadth of view the Americans did not apparently possess the massiveness of their great Roman, he was going to say, progenitors in art. A scheme of water always had a great fascination, and the water must have been a magnificent foreground to the fronts of the buildings. The glare and dazzle must have been very great, but the dazzle was part of the whole scheme, and he should think intentionally so. It was in order to dazzle the world, as it were, that so great an undertaking was attempted. With regard to the buildings themselves, although they recognised in them classical proportions, they felt that many of them were lacking in classical dignity. Many of the colonnades were beautiful, but the pavilions and central features, seemed out of harmony and out of scale with them. The Transportation building had in it a great conception, it suggested its purpose; but many of the buildings did not: they might have been galleries of fine art, galleries of sculpture and painting, but they did not suggest specifically the purpose to which the building was put. With regard to the German building—he did not know what others in the room felt, but to him it seemed ugly. They need not, he thought, go to Germany to get their proportions if that was the best their chosen architect could do. Comparing it with the quiet dignity of their English building at the exhibition, he thought they might rest satisfied that they, at all events, were going on quiet and sensible, and might he say dignified artistic lines? The English building did not look as the German one did, as if it were an erection on plate glass, like some Regent Street shop designed by a speculative builder. For the enterprise of the American nation who had undertaken this great Exhibition, they could have nothing but the greatest admiration. It was stupendous as a scheme, and it was significant of the genius of the people that they should undertake such vast schemes. We here modestly did an Exhibition upon, perhaps, 20, or 40, or 100 acres; there they talked in square miles and thought in square miles. In conclusion he would say the Institute had this gratification: they had sent to America a Bursar who was able to bring them home a very intelligent record of all that he had seen to delight them that evening, and to give them a volume which, if anyone had the time, would repay him for reading.

The CHAIRMAN in putting the Vote of Thanks said that in regard to the colossal way in which American architects conceived their work, when one came to thirty-story buildings in New York it was not only colossal, but monstrous. As to the large way in which American architects thought, he could point to an English architect of over two hundred years ago who thought in a very much larger way than any American architect did. The design for Whitehall by Inigo Jones was not only colossal, but it was palatial in its design; and if it had been carried out, it would have been, not only a monument to Charles, but to the great English nation.

Mr. PHILLIPS FLETCHER, in responding to the Vote of Thanks, said that in the space of an hour it was impossible to touch on this enormous Exhibition except in the broadest possible manner. He hoped he had not said anything which would induce them to think that he decried the efforts of French architects or their methods of education at the École des Beaux-Arts. Personally he was convinced that their system was far nearer an ideal one than that of any other European nation. What he said was this—and he said it most emphatically—that when the sole result of studying at the Beaux-Arts was to produce a glorified mixture of reproductions of old buildings, he did not think that the Beaux-Arts was going to do anyone much good. Mr. Masqueray, who was a distinguished student of the Beaux-Arts, who took the Prix de Rome and many other distinctions, did not go to the States and there reproduce a few odds and ends of buildings disjointedly connected. He had given them the Forestry, Fish, and Game building, which, if French in feeling, was certainly "Masqueray" in design. He should be very sorry indeed if anyone thought he was saying anything against the education of the Beaux-Arts. He was afraid he must have spoken very carelessly to have conveyed such an impression. With regard to Mr. Hall's suggestion of a Roman motive, that was a very splendid idea; but would it not mean that the whole Exhibition would have to be designed by one architect? That would not go down in the States at all; he doubted if it would in England! When different architects were given buildings to design, and they were instructed that each building was to contain a certain number of superficial feet, the various buildings probably would not coincide with any known number of buildings gathered together in one spot, or any one conception of a group of buildings.—Mr. Fletcher, in conclusion, said he had hoped to have heard his friend Mr. Collard say something on the subject, as he was well versed in Exhibition buildings in England. He also regretted that his brother Mr. Banister Fletcher, who had so thoroughly studied the Chicago and Paris Exhibitions, was unable to be present.

Mr. A. O. COLLARD [*F.*], rising at the invitation of the Chairman, said that the opening business of their proceedings that evening had reference to the highest award of merit which the Institute had any hand in conferring, and it was rather interesting that the end of the meeting should deal with a Paper which was the result of another award of merit which the Institute had the power to bestow. He had been afraid when Mr. Fletcher had asked him specially to be present that evening that he might possibly refer to the Exhibition with which he (the speaker) happened to be associated, and he was very much relieved when he found that no comparisons, odious or otherwise, were made in his Paper or by any of the speakers. In this country they dealt with Exhibitions on a very small scale, and when they came to look at the enormous area taken up by the St. Louis

Exhibition it was extraordinary to think that anything so colossal should be attempted. He very much wished that the gentleman whose name was received with such acclamation at the early part of the meeting, Mr. Sydney Smirke,* now living in Richmond (son of Mr. Sydney Smirke, R.A., and nephew of Sir Robert Smirke, R.A.), had been present that evening, for he was one of the pioneers of Exhibitions in America. When quite a young man, Mr. Smirke left his father's house, tired of London life, and roamed the world. He dabbled in architecture whenever he had an opportunity; and finally he wound up in America, and was principally responsible for the great Exhibition of Philadelphia. That probably was not known to anybody here, for he was a man of so retiring a nature that little indeed was known of his work abroad, and he had not done a great deal of work in England. But that was the fact—he was the man at Philadelphia—an Englishman. As Mr. Fletcher had mentioned, and as they had satisfied themselves by looking at the photographs, it was the English work which all the world over seemed to be the best work. Those who favoured the École des Beaux-Arts had undoubtedly good legs to stand upon. They were always glad to hear the École des Beaux-Arts praised; but he fancied very few Englishmen cared to go there for their final education. What puzzled them at Earl's Court, if he might be personal, was to know how to construct cheaply and quickly; and that was one of the things that the Americans had discovered for them. Whether the American Exhibition was under the control of a public authority he did not know, but if they in London in building an Exhibition were to endeavour to persuade the London County Council that wooden construction, whether faced with plaster or perfectly bare, as in the interior of some of the St. Louis buildings, was satisfactory to construct, he was a little doubtful what the result would be. He had tried it on himself on many occasions in connection with that small spot of 25 acres at Earl's Court, and he had never yet been able to convince the Council that wooden construction, either naked or covered, was satisfactory. He was simply delighted, when he saw those photographs, to see what could be done, because that would be another lever he should employ to produce, if possible, cheaper building. Of course the Americans had the whole country at their back; they were able to spend 50,000,000 dollars (£10,000,000), and they could probably have had more; and, as Mr. Fletcher pointed out, they had not had a penny back. Unfortunately, with conceptions of this kind in England, they had to earn dividends, and therefore very little could be expected of them. It was no good anyone connected with a small Exhibition in London trying to emulate the frog in Æsop's fable, which blew himself out and eventually burst in his attempt to attain to the dimensions of the ox. But they would console themselves, at all events, with the other old saying, that good things may be wrapped up in very little parcels. Mr. Fletcher was one of two able brothers, sons of an able father whom they had no longer with them, and it was really a great pleasure to come here and see and learn that he was one of those who was adding distinction, not only to his own family, but to the Institute. They were proud of all those young men (and he regarded Mr. Fletcher as quite a junior to himself) who earned these prizes and went away and gained this information and came back and told them all about it. It was indeed a pleasure to be able to congratulate him and the Institute on such a result.

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* See note in Minutes, p. 312.

9, Conduit Street, London, W., 11*th Mar.* 1905.

CHRONICLE.

The Royal Gold Medal 1905.

The Special General Meeting convened for the election of the Royal Gold Medallist for the current year was duly held last Monday, and the Council's selection received the hearty approbation of the Meeting. Mr. T. E. Collcutt, *Vice-President*, who was in the Chair, said it gave him very particular pleasure to put Sir Aston Webb's name before the Meeting for the Royal Gold Medal. They had known Sir Aston for a great number of years. They had known his work at the Association; they had known his work at the Institute; they knew his work in building; and, perhaps more than all, they knew the man himself. There was, he thought, no name that could have been put forward which would be received with greater acclamation than that of Sir Aston Webb.—The motion, having been formally put from the Chair, was carried with loud applause.

Mr. Phillips Fletcher's Godwin Bursary Report.

The lecture delivered at the Institute last Monday, which is printed in the foregoing pages, was Mr. Fletcher's very kind response to a request from the Secretary only a few days beforehand that he should give the Meeting a few notes, illustrated by lantern slides, of the St. Louis Purchase Exhibition, which he had undertaken to visit and report upon as Godwin Bursar for the year 1904. The very tangible outcome of his labours, consisting of a handsomely bound typewritten volume of considerable dimensions, lay on the table, and was referred to by the Chairman at the opening of the proceedings. This work, the production of which must have involved great labour, forms a complete monograph of the Exhibition, as far as relates to the architecture, the engineering, materials and methods of construction, the statuary, and the laying out and decoration of the grounds. It contains 140 illustrations, comprising maps and plans of the site, photographic views of all the buildings, and plans, sections, and details in pen-and-ink. As probably by this time most of the buildings are demolished, as a record Mr. Fletcher's Report will be invaluable for reference.

M. Rodin on London and on British Art.

At the suggestion of a member a few extracts are given below from the article by M. Auguste Rodin in the *Daily Express* of the 3rd inst., in which the eminent sculptor expresses himself so charmingly about London and its atmosphere—from the artist's standpoint; and in which he has much to say that is encouraging, and from so distinguished a source not a little gratifying, about our native-bred artists and their productions in this country.

"It must not be thought," says M. Rodin, "that because at present I am enjoying the hospitality of England I am a flatterer when I say that London is to me, from the artist's point of view, the most beautiful city in the world. Also I would say in all sincerity that London is now quite as great an art centre as Paris, and may possibly become the art capital of the world. We cannot read the future. . . .

"Here in England you have a land for painters. Your atmospheric effects—in some ways akin to those of Holland—are infinitely finer and more varied than those that you can find in the drier climes of Italy or France. In Italy and Southern France you may always count on your blue sky—gloriously beautiful and blue, it is true, but none the less hard and changeless; but here in England, especially in London, you have every day a sky as changeable and as beautifully coloured as one could desire. If, for example, you choose to spend the day on the Embankment by Chelsea, a locality greatly loved by Whistler, you can discern in the course of the day a change of sky and atmosphere and effect that is in itself a perfect drama. You begin with the red dawn, and before the morning hours are advanced there is a sky as black as night, and the rain descends in silver sheets. This may be followed by a serene and cloudless noontide that reminds one of the south. The afternoon draws on, and there follows a rich and mysterious sunset that precedes a blue-black, star-hung night. Then there are your fogs—fogs that Londoners rail at—yet if they be light they are a harvest of impressions to the artist.

"The Englishman has a habit of denouncing his old monuments and the statues in the streets of his city. They may not be very good, but, believe me, they are quite on a par with those of France and Germany. . . .

"You, too, in England should take heart and comfort because in the inspiration of Watts and Leighton you possess a dual capacity to carve and paint which we in France have so far lacked in a similar degree. But over here one finds that dual capacity more than in France.

"There is, of course, one drawback against which you English have had to fight—insular prejudice. Or perhaps I should term it insular personality. You find this writ large all over your buildings, your sculpture, and your paintings. Indeed, till the advent of Whistler it shaped almost everything in your art. I mean that you give to all your architecture, monuments, and pictures a certain unsympathetic solidity. You must have things big and lasting, and in striving after this you lose the subtler effects of the more elastic idea. . . .

"You English, too—on business intent—are too prone to denounce all artists in your own country as being a prey to commercialism. There may be some who fall a victim to the spirit of money-grubbing, but, in the main, so far as I can judge, the struggle of the English artist is a clean and an honourable one. He may starve, but he will not forsake his art.

"And in this I find great encouragement in your art schools. In those which I have visited I find the artistic spirit strong and pure. Indeed, though you will not see it, there is implanted in the English breast the same devotion to duty in matters of art which has made you successful as sailors and shopkeepers. It is an ideal to be cherished."

The Training of the Artist.

Sir Charles Holroyd, on the occasion of the annual distribution of prizes at the Sheffield Technical School of Art on the 24th ult., giving some words of counsel to those engaged in teaching and learning art, deprecated too much time being given to mere drawing from copies, however good they might be. What they had to do, he said, was to educate the eye to learn to see. The education of the artist was the education of the eye, not the hand. Facility of handling was one of the greatest of stumbling-blocks. His master (Professor Legros, of the Slade School of Art) would not allow his pupils to use copies except at the very first. They were sent at once into the antique school to draw from casts. Later on, if they were found to have taken to slovenly ways of drawing, or any other bad habit, they were set to copy special drawings. He (Sir Charles Holroyd) would never allow his students to work from anything that was not a fine work of art, good, and beautiful. Beauty—that was the word. The art school, technically or otherwise, should be a place of beauty, devoted to the study of Beauty in all her manifestations. There were so many lovely things in nature and in art that he could not tell why they used the ugly things. He had seen schools of art, which were not bad buildings in themselves just ruined for want of taste. There should not be too many beautiful things on the walls at one time. In all schools of art he would like to have a reserve room where some of the things might be kept carefully stored, and be on view only at certain times. They might take a hint from the Japanese in their system of decoration. They stored all their beautiful things in a cabinet, and they were only shown one, two, or a few at a time, so that the concentration of the visitor might be given to one or two things before him. A school of art should be the temple of taste, and its inhabitants, the masters and pupils, should be the priests and acolytes, the arbiters and devotees, of taste in the town. He had seen the walls of schools painted a "dunducketty" mud colour, and dirty at that, when whitewash would have been cheaper. The corridors and passages should all be in good taste, and examples of art and good craftsmanship should be placed in positions where they would look well and add to the beauty and utility of the building. A point in the ideal school of art which he had often thought about, but had never seen carried out, was that more advanced students should be allowed to decorate the fabric under the supervision of the headmaster. All the crafts might be employed for this purpose, and as a painter he felt that a student would gain enormously, and would do better work, if he was doing it for a set purpose. There were many panels and other convenient places, even small ceilings, where a student might be allowed to paint decorative compositions. The efforts could be allowed to stand for a year or two only, unless they turned out to be very excellent, and the students could replace the poorer examples. As regards system the headmaster should be allowed a free hand. The more variety and local colour they could get into their schools, the better. No hard-and-fast system would ever do any good. They could not get art out of a code. They must have love, enthusiasm, and inspiration, and no man worth his salt could give all that to a dry formula. Let the master invent his own, and he would run it for all it was worth. Addressing the students more particularly, Sir Charles went on to say that all forms of art were an expression of joy in work. If they were not enjoying their work they must be doing it badly. He appealed to them to remember what he had said about beauty. He did not mean that they should go in for expensive and extravagant things beyond their means, but they could begin by getting rid of all that was false and ugly, even if they had to do with one plate and get up at dinner to wash it for the pudding! Oh, the mass of ugliness in a china shop! He often wished he was a bull—in a china shop! They should not encourage such ugliness. They could do something by refusing to buy such things themselves, and persuading others to do the same. The maker would then soon learn what was ugly. They must also not neglect beauty in the mind. Let them cultivate their intelligence as much as they could; read only the best books, and read them often. They should read, and often see Shakespeare acted, if they could. As for work they might be told that they would lose their originality if they studied an old master. In his opinion the originality that would be lost by such a study was poor stuff and not worth the keeping. They would be better employed echoing the martial footsteps of the masters through the corridors of time than in dancing silly jigs of their own, that only drowned the sweet music of the past and the small true voice of the present, if perchance it was here.

Testimonial to Mr. R. Phenè Spiers.

The Dinner given to Mr. Phenè Spiers on the 27th ult., when an Address and various gifts and testimonials were presented to him, was the outcome of a movement initiated by some of his old friends and pupils to recognise in some tangible form the important services rendered by him during the last twenty-five or thirty years in acting as the friend and adviser of architectural students of various nationalities, and helping to raise their ideals of architecture; and also to show an appreciation of the value of his published contributions to the archæology and literature of architecture. Sir Aston Webb, R.A., was the chairman of the Committee charged with collecting funds and making the arrangements for the testimonial, and he also presided at the Dinner and Presentation, which took place at Pagani's Restaurant.

The Address, beautifully illuminated by Mr. Allan F. Vigers, and subscribed by nearly 400 architects (including over 300 in the mother country, five in India, twenty-four in the Colonies, fifteen in the United States, three in France, besides those of the Société Centrale Address, four in Japan, and others), was as follows:—

To Richard Phenè Spiers,—

Architect; Master of the Architectural School of the Royal Academy of Arts; Fellow of the Royal Institute of British Architects;[*] Fellow of the Society of Antiquaries; Member and Past-President of the Architectural Association, London; Member of Council of the Japan Society; Member of the Hellenic Society; Associate and Honorary Fellow of King's College, London; Honorary Corresponding Member of the "Société Centrale des Architectes," Paris, and of the "Sociedad de los Arquitectos," Madrid; Gold Medallist, Scholar and Travelling Student of the Royal Academy of Arts; Soane Medallist and Travelling Student of the Royal Institute of British Architects, &c., &c.; Author of "Architectural Drawing" and "The Orders of Architecture"; Joint Author of "The Architecture of Greece and Rome"; Editor of a new edition of Fergusson's "History of Architecture in all Countries"; and Author of Architectural and Archæological Essays on "Pierrefonds," "Sassanian Architecture," "Domed Churches in Perigord," "The Mosque at Damascus," and other subjects.

We, the undersigned Architects, Students of Architecture, and Workers in the Arts, desire to give expression to our regard for you, and to mark our appreciation of your scholarly attainments, and of the good work which you have done in forwarding the study of Architecture during many years, in the course of which you have not only won distinction for yourself, but have done so much to help others.

We also desire to record our acknowledgment of your labours in the cause of Architectural Education, and of the hearty aid which you have always been so ready to afford as a friend and counsellor.

Many of us gratefully remember the kindness of your welcome, your constant sympathy, and your interest in our student life and subsequent work.

The testimonial further took the form of the following gifts:—

A large bronze Medallion Portrait of Mr. Spiers, modelled by Professor Lanteri, of the Royal College of Art, South Kensington.

A small Medallion Portrait, reduced from the above. Replicas of this medallion have been taken for distribution among Mr. Spiers's friends, and the Medallion is eventually to form part of a prize to be connected with Mr. Spiers's name, for which purpose the residue of the collected funds will be applied.

The publication in one volume of a series of Essays written at various times by Mr. Spiers. The volume, entitled *Architecture East and West*, has been admirably produced by Mr. Batsford at very short notice, and was ready in time for a copy to be presented to Mr. Spiers along with the other gifts included in the testimonial.

The following books (presented by former Academy students):—

Choisy: *L'Art de Bâtir chez les Romains.*
Choisy: *L'Art de Bâtir chez les Byzantins.*
De Vogüé: *Temple de Jérusalem.*
De Vogüé: *Syrie Centrale, Architecture Civile et Religieuse.*
Wood: *Ruins of Baalbek.*
Coner: *Sixteenth-century Drawings of Roman Buildings.*
Longfellow: *Cyclopædia of Architecture in Italy, Greece, and the Levant.*
Jackson: *Dalmatia, the Quarnero, and Istria.*
Butler: *Architecture of Northern Central Syria and the Djebel Haurân.*
Schultz and Barnsley: *The Monastery of St. Luke o Stiris in Phocis and St. Nicholas-in-the-Fields.*
Jameson: *Works on Sacred Art*, 6 vols.
De Caumont, Abécédaire on *Rudiments d'Archéologie.*
Rhys: *Monograph on Lord Leighton.*
Prior: *History of Gothic Art in England.*
Murray: *Sculptures of the Parthenon.*
Venturi: *Storia dell' Arte Italiana.*

At the formal presentation on the 27th ult. these books were brought in by a procession of Mr. Spiers's Old Students. The Chairman was aided in their presentation by M. Pascal, Membre de l'Institut de France, who was present on behalf of the Société Centrale des Architectes Français and of the Atelier Blouet-Gilbert-Questel-Pascal, Paris.

Other gifts were:—A Laurel Wreath; a Commemorative Medal struck in honour of Mr. Spiers by the Société Centrale des Architectes Français;

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[*] It may be mentioned that Mr. Spiers served for many years on the Institute Council, that he has been a member of the Literature Committee for fourteen years and Chairman for six years, and that he does valuable service every year in connection with the works sent in for the Institute Prizes and Studentships.

and *L'Architecture Française de Blondel*, 4 vols., published under the auspices of the French Ministère des Beaux-Arts, and presented by old friends of the Atelier Questel (École des Beaux-Arts), in which Mr. Spiers studied in his youth.

THOMAS BLASHILL.

THOMAS BLASHILL, who with few exceptions was known by repute to all the members of the R.I.B.A., and to a great number of them as a genial friend, passed away on the 19th January 1905, after a short illness, in his seventy-fifth year. The respect in which he was held was evidenced by the large congregation that assembled at St. Pancras Church at his funeral service, including personal and professional friends and representatives of the many public bodies with which he was connected, many of whom were present at his interment in Highgate Cemetery. His good-natured smile, hearty hand-shake, and emphatic manner will be long remembered by those who had the good fortune to know him.

Born at Sutton-in-Holderness, near Hull, he received his education in Hull and Scarborough, and at first entered a commercial office, where he acquired business habits and information which in after life he found of great value. At the same time he availed himself of the valuable library, reading-room, lectures, and classes of the Hull Mechanics' Institute, and studied architectural drawing under Mr. Bevan, an able artist in Hull. In 1851 he joined his uncle, a land agent and surveyor at Hereford, where he not only obtained knowledge of surveying and general building, but in his leisure, having access to private libraries, he pursued the study of architecture. In 1854 he came to London and adopted architecture as his profession. He entered the offices of Mr. J. W. Penfold and Mr. T. E. Knightley, devoting his evenings to hard study and attendance at Professor Donaldson's lectures at University College. In 1861 he commenced practice as an architect and surveyor in Old Jewry Chambers in partnership with Mr. C. Ainslie, a Fellow of the Institute, who died in 1863. He then became associated with Mr. William Haywood, for a great number of years the engineer to the Commissioners of Sewers of the City of London, and this may be considered the turning-point in his career. The value of an observant and clear-headed man upon whom he could rely soon commended him to Mr. Haywood, and he was of assistance to him in many architectural works he had to carry out for the City of London, chiefly in connection with the design and execution of the Holborn Viaduct, which included some heavy committee work in obtaining an Act of Parliament for its construction, and the superintendence of the preparation of all the drawings and the general carrying out of the work.

After the death of Mr. Ainslie he shared his offices with Mr. Henry Haywood, and together they carried out several architectural works. During the continuance of his practice as an architect, he executed amongst other works the Standard Bank, Clement's Lane; commercial buildings in The Poultry, Fenchurch Street, Ludgate Hill, Great Tower Street, and other places; Christ Church, Beckenham, and works and restorations at several churches, chiefly in Herefordshire; the Board schools and cemetery at Herne Bay, houses and other buildings.

In 1876 he was elected district surveyor of Bethnal Green East and South Bow, and afterwards of West Hampstead, which he resigned in 1887. The position of Superintending Architect to the Metropolitan Board of Works being vacant by the death of Mr. George Vulliamy, after a somewhat severe contest Mr. Blashill was appointed to succeed him in 1887, and on the extinction of that body he was appointed to a similar position by the London County Council.

The functions of the Council greatly increased from time to time, and in addition to his general work of consultee, advisor, and administrator of the Building and Local Management Acts, the Theatre and Music Hall Acts, the architect of buildings in connection with the parks and open spaces and Fire Brigade, he was called upon to design other buildings for the purposes of the Council, including a chamber for its meetings, and the adaptation of the old offices to suit the growing needs of the staff, and the erection of fire stations in various parts of the Metropolis.

The need of official supervision in the construction of new theatres and music halls, and also the alteration of existing buildings to safeguard the public in case of fire and panic, caused Mr. Blashill to turn his attention to this subject, and the regulations now in force tend to allay anxiety in the minds of those attending these places, and render the theatres in London and in most of the cities and large towns in England probably safer than those in any other country.

The urgent need of clearing away the slums and unhealthy houses and the erection of lodging-houses and dwellings for the working classes threw upon him the task of solving the difficult problem of providing the needful accommodation without burdening the rates. To this he applied himself with much energy, obtaining all the information available on the subject from our own and foreign countries.

The first attempt on a large scale was the Bethnal Green scheme, which may be said to have introduced a new era by ensuring ample light and air by means of wide streets and open spaces. This was followed by other schemes for providing the respectable artisan with a comfortable home at a reasonable rent.

The Factory and Workshop Act, which placed on the County Council the responsibility of requiring suitable means of escape for the workpeople in case of fire, necessitated certain principles to be adopted which involved considerable alterations to existing buildings and a large outlay in providing the necessary means of exit, which in many cases gave rise to much friction.

The determination to obtain a new Building Act to take the place of that which had been in operation for forty years was a further tax upon his energies, and caused him much anxiety during its passage through the Committees both of the Lords and Commons, before whom it was strenuously opposed.

These and a hundred other things caused his time and mind to be fully occupied.

The carrying out of the above works entailed an enormous increase in the staff of his office and consequent responsibility; but the care exercised in the selection of his assistants enabled the work to be carried on with comparative ease.

That his labours met with general approval is evidenced by the fact that at the age when he should have retired he was requested to continue for three consecutive years, and on his retirement he received the good wishes of the Council and its chief officers, together with a substantial pension.

It is worthy of remark that during the whole time he filled this office, and indeed the whole of his professional life, he was never absent one day from illness.

From the time of his retirement from the County Council he occupied himself in consultations, arbitrations, and other congenial work, and on two or three occasions represented the Board of Trade in labour disputes.

Mr. Blashill became a member of the Architectural Association in 1857, and five years after was elected President. At this time there were only about 200 members. From his election to his death he continued a member, and took the liveliest interest in its work; it may be truly said that he was never more happy than in the company of younger members of his profession. His name appears as a reader of a Paper in 1861, and for a considerable number of years he undertook a similar duty, and took part in discussions, giving the younger men the advantage of his experience and advice.

He was one of the pioneers of architectural education, and interested himself in classes established by the Association for preparation for the voluntary examination which had been established by the Institute at the earnest request of members of the Association. This voluntary examination after a few years gave place to the compulsory examination for admission to the Institute.

He was a great advocate for foreign travel by young men, and suggested to the Association the desirability of organising an excursion to Italy at Easter. Many young men availed themselves of the opportunity, and formed a kind of preparation class; at several of the meetings Mr. Blashill attended, greatly assisting in the study of the most important works they should visit, and preparing a chart showing the periods during which the principal architects lived and practised.

In 1866 he was elected an Associate of the Royal Institute of British Architects, and in 1877 a Fellow. As in the Association so in the Institute he was ever an active member, and constantly pressed the importance of its being a thoroughly representative body by inducing architects in practice to consider it their duty to become members, and for the Institute to offer facilities to this end. For thirteen sessions—viz. from 1888 to 1901—he had a seat on the Council, and during his membership he served on many of its Committees, including the Science Standing Committee. He was one of three representatives of the Institute on a joint committee, composed of all the large Water Boards and the Plumbers' Company, which is now drawing up standard regulations for Water Boards, which it is hoped will make the requirements of Water Companies uniform all over the United Kingdom and Ireland, and tend to improve the standard of plumbers' work. He had served on the Board of Examiners, and was one of the Statutory Board of Examiners under the London Building Act.

The Surveyors' Institution claimed him amongst its members, having been a Fellow since 1884 and a member of Council up to the time of his death. He was also a Fellow of the Royal Sanitary Institute. To each of these important bodies he contributed Papers on several subjects, including Street Improvements and Traffic in London, Housing of the Working Classes, Lessons from Fire and Panic, &c.

Outside these professional societies he found time to undertake the duties of examiner for the Science and Art Department, South Kensington, and to deliver lectures on carpentry and other subjects at the Carpenters' Hall and at the Society of Arts, and also in witnessing tests made under the direction of the Fire Prevention Committee, of which he was a member. He was also much interested in the technical classes at the Polytechnic School, and was for some years a member of the Council.

As an archæologist, as well as an architect, he was an old and active member of the British Archæological Association, as a member of the Council, and for several years Treasurer, serving as Vice-President in 1901. At its meetings, and especially the summer excursion, he was much in request as an authority and guide in examining ancient buildings and other works of antiquity.

It may be mentioned that he devoted much time and study to Tintern Abbey, and by request compiled a reliable and interesting guide illustrated by his own sketches. He also wrote a work entitled *Sutton-in-Holderness: The Manor, the Berewic, and the Village Community*, which has more than a local interest.

He was a member of the Council of the London Topographical Society and a Fellow of the Zoological Society.

His love of nature from his boyhood induced him to become a member of the Woolhope Field Club, of which he was the oldest member, having on two occasions occupied the position of President and rendered useful service. His knowledge of trees, British plants, ferns, eggs, &c., of which he had a large collection, was especially valuable to his fellow members. His scrutiny led him to the belief that much of the timber in old roofs, said to be chestnut, was oak.

Mr. Blashill did not confine himself to architecture and its cognate arts and associations, but was a good citizen and defender of his country. For nearly forty years he served in the Honourable Artillery Company through all grades, retiring a few years ago with the rank of captain. He was also a member and Past Master of the Fitzroy Lodge of Freemasons, which is associated with this ancient regiment.

He was a liveryman and member of the Court of the Framework Knitters' Company, and only retired from its mastership a few months before his death.

After his retirement from the London County Council he was urged to become a member of the Borough Council of St. Pancras, of which body he was a Councillor for three years.

As an ardent member of the Church of England he was for twenty-three years Churchwarden of St. Matthew's, City Road, one of Sir Gilbert Scott's buildings, and for four years Churchwarden of St. Pancras Parish Church, holding this office at his decease.

One of his greatest pleasures was foreign travel. He always arranged to go abroad once—and sometimes oftener—in each year. His travels had taken him to France, Italy, Austria, Germany, Switzerland, Belgium, Holland, and other places. As may be expected, he was a keen observer and withal a quick and careful sketcher and colorist, and a look through some of his sketch and note books would give a good idea of the situation, buildings, peoples, and customs of the places he visited. Many of his friends testify to the interest they derived in looking through his drawings and photographs and listening to the graphic descriptions of his tours. He has left several manuscript journals detailing the incidents of his visits.

It is interesting to note that the Blashills are an old Yorkshire family, the records going back as far as the twelfth century.

Mr. Blashill may well be described as a many-sided man and withal a thorough man. At all the societies and institutions to which he belonged he imparted to others the advantages of the knowledge and experience he had gained by hard work and diligent research during his long professional career of fifty-three years. Although not an ambitious man he was ready to undertake any position that he felt he could occupy with advantage to those with whom he was associated, and it was a pleasure to him, even at great labour to himself, to assist, either by charity or by influence, those who appealed to him.

The care which he bestowed in gaining facts made him a reliable authority, and, whether as an adviser, administrator, or companion, his words had great weight. He took pains before forming his opinion, but having come to a decision it was almost impossible to get him to alter it.

In filling the difficult and responsible position of Superintending Architect it is not to be supposed that he found favour with everyone with whom he was brought into contact; but it will be allowed that he was always firm, upright, conscientious, and painstaking, and as such obtained the respect not only of friends but opponents.

To the younger members of our profession he may well be looked up to as an example. His advantages were not great, but he made the best of those he had, and was ever adding to his store of knowledge. Whatever he undertook he gave his whole heart to, and no trouble was too great to enable him to bring his work to a successful issue. Although he was a most industrious man, the varied nature of his occupation and hobbies enabled him to throw off cares which to many would have caused a great strain on the mind. In looking back on his career it may truly be said that he left the world better than he found it.

This short memoir would not be complete if no reference was made to the widow, whose loss is almost unbearable. Having no family, Mr. and Mrs. Blashill were true companions. It is gratifying to know that the many expressions of respect and esteem with regard to her husband which she has received from public bodies and individuals and the sympathy shown to her have done much to comfort her in her sorrow.

J. Douglass Mathews [*F.*]

MINUTES. IX.

At a Special General Meeting held Monday, 6th March 1905, at 8 p.m.—Present, Mr. T. E. Collcutt, *Vice-President*, in the Chair, with 31 Fellows (including 8 members of the Council) and 42 Associates (including 1 member of the Council), the Chairman, having announced that the Meeting was convened pursuant to By-law for the purpose of electing the Royal Gold Medallist for the current year, moved, in accordance with notice, that Sir Aston Webb, R.A., be elected for the honour. Whereupon it was

> Resolved, *nem. con.*, that subject to His Majesty's gracious sanction the Royal Gold Medal for the promotion of architecture be awarded this year to Sir Aston Webb, R.A., for his executed works as an architect.

This concluded the business of the Special Meeting.

At the Ninth General Meeting (Business and Ordinary) of the Session 1904-05, following the Special Meeting above minuted and similarly constituted, the Minutes of the Ordinary Meeting held Monday, 20th February 1905 [p. 260], were taken as read and signed as correct.

The Hon. Secretary announced the decease of George Fowler Jones, of Lendal, York, *Fellow*, elected 1868.*

On the motion of the Hon. Secretary, a vote of thanks was passed to the givers of various donations to the Library, especial mention being made of Mr. Sydney Smirke [*F.*], from whom had been received his sixteenth annual donation of £5 to the Library Fund.

The Secretary announced that a poll for the election of a candidate for membership having been demanded under By-law 9, voting-papers had been issued, and the returns scrutinised by Messrs. Herbert Wigglesworth [*F.*], L. Kitchen [*F.*], and Douglas Wood [*A.*], scrutineers appointed by the Council, the results being Ayes 255, Noes 473—Majority against 218.

The following candidates were elected by show of hands under By-law 9:—

As Fellows (16).

FREDERICK EDWARD FELLOWS BAILEY [*Assoc.* 1879], Walsall.
HAROLD BAILEY [*Assoc.* 1895].
WILLIAM BEVAN [*Assoc.* 1902], Chief Government Architect, Pretoria, S. Africa.
CHARLES BELFIELD BONE, M.A. Oxon.
JOHN CAMPBELL, Government Architect, Wellington, New Zealand.
WILLIAM EDWARD VERNON CROMPTON [*Ashpitel Prizeman* 1894, *Assoc.* 1895].
CHARLES BURROWS FLOCKTON [*Assoc.* 1896], Sheffield.
JOHN FRANCIS GROVES, Newport, Mon.
ARTHUR JESSOP HARDWICK, P.A.S.I.
ARTHUR GEORGE LEIGHTON.
HENRY HILL McCONNAL [*Assoc.* 1882], Walsall.
TEMPLE MOORE.
ARCHIBALD NEILL, Leeds.
EDWARD TURNER POWELL.
WILLIAM GILMOUR WILSON [*Assoc.* 1881].
EDMUND WALTER WIMPERIS [*Assoc.* 1889].

As Associates (31).

THOMAS FORD AMERY [*Probationer* 1897, *Student* 1902, *Qualified* 1904].
DOUGLAS ANDERSON [*Probationer* 1898, *Student* 1901, *Qualified* 1904].
EDWIN GEORGE GOODSON BAX [*Probationer* 1897, *Student* 1902, *Qualified* 1904].
WILLIAM SOMERVILLE BEAUMONT [*Probationer* 1893, *Student* 1896, *Qualified* 1904], Manchester.
MARTIN SHAW BRIGGS [*Probationer* 1899, *Student* 1902, *Qualified* 1904].
JOHN SYDNEY BROCKLESBY [*Probationer* 1897, *Student* 1901, *Qualified* 1904].
CHARLES FRY CALLOW [*Probationer* 1899, *Student* 1901, *Qualified* 1904].
CHARLES PITWOOD CARTER [*Qualified Special Examination* 1904], Mansfield.
GEORGE ROWLAND ELLIS [*Probationer* 1895, *Student* 1897, *Qualified* 1904], Manchester.
JOHN ALFRED FLETCHER [*Probationer* 1895, *Student* 1901, *Qualified* 1904], Leicester.
HORACE CHARLES FREAD [*Qualified Special Examination* 1904].
WILLIE JOSIAH FREEMAN [*Probationer* 1900, *Student* 1901, *Qualified* 1904], Halifax.
CHARLES LOVETT GILL [*Probationer* 1901, *Student* 1902, *Ashpitel Prizeman* 1904, *Qualified* 1904].
HERBERT HAYLOCK GOLDING [*Probationer* 1902, *Student* 1903, *Qualified* 1904].
PERCY ARCHIBALD HINCHLIFFE [*Probationer* 1896, *Student* 1899, *Qualified* 1904], Barnsley.
PERCY ASPDEN HORROCKS [*Probationer* 1900, *Student* 1901, *Qualified* 1904].
ARTHUR BENISON HUBBACK [*Qualified Special Examination* 1904], Kuala Lumpur, Selangor.
DAVID BARNES JENKINSON [*Probationer* 1902, *Student* 1903, *Qualified* 1904].
GEORGE ALFRED JOHNSON [*Probationer* 1902, *Student* 1902, *Qualified* 1904].
JAMES MILLER [*Probationer* 1898, *Student* 1900, *Qualified* 1904], Sheffield.
CHARLES NICHOLAS [*Qualified Special Examination* 1904].
HERBERT LUCK NORTH, B.A. Cantab. [*Qualified Special Examination* 1904], Conway, N. Wales.
CLAUDE PATERSON [*Probationer* 1900, *Student* 1902, *Qualified* 1904], Bowdon, Cheshire.
ALBERT REGINALD POWYS [*Probationer* 1900, *Student* 1902, *Qualified* 1904], Montacute, Somerset.
EDGAR QUIGGIN [*Probationer* 1900, *Student* 1901, *Qualified* 1904], Liverpool.
GERALD SANVILLE SALOMONS [*Probationer* 1899, *Student* 1901, *Qualified* 1904], Manchester.
HENRY RICHARD GEORGE STRONG SMALLMAN [*Probationer* 1900, *Student* 1902, *Qualified* 1904].
NEIL CAMPBELL SMITH [*Probationer* 1900, *Student* 1900, *Qualified* 1904], Moffat, N.B.
ERNEST GEORGE WILLIAM SOUSTER [*Probationer* 1899, *Student* 1902, *Qualified* 1904], Northampton.
CHARLES JOSEPH THOMPSON [*Probationer* 1899, *Student* 1901, *Qualified* 1904].
JOHN NORMAN RANDALL VINING [*Probationer* 1899, *Student* 1900, *Qualified* 1904].

A question by Mr. H. T. Bonner [*A.*] having reference to the nomination by the President of competitors to take part in public competitions was ruled out of order by the Chairman on the ground that previous notice of the question had not been given.

A lecture by Mr. H. Phillips Fletcher [*F.*], entitled "Some Impressions of the St. Louis Exhibition 1904," being a résumé of his Report as Godwin Bursar for the year 1904, having been delivered and illustrated by lantern slides, a vote of thanks was passed to the lecturer by acclamation.

The proceedings then closed, and the meeting separated at 9.45 p.m.

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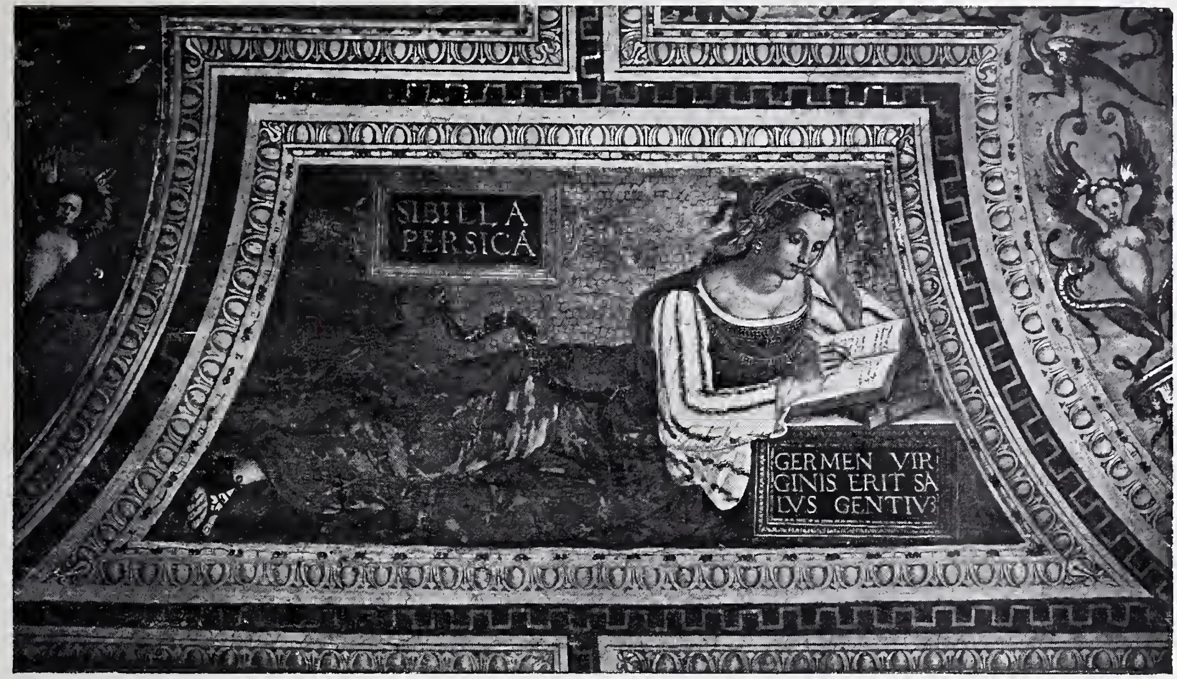
* The death (on the 7th March) is also regretfully recorded of Mr. Samuel John Thacker, *Associate*, elected 1880, of 22 Montague Street, Russell Square.



MOSAIC AND FRESCO BY PINTURICCHIO, AT S. MARIA DEL POPOLO, ROME. THE FIGURE IS IN FRESCO, THE BACKGROUND IN MOSAIC.

DECORATIVE PAINTING.

By Sir William Richmond, K.C.B., R.A. [*H.A.*], Alfred East, A.R.A. [*H.A.*], and Solomon J. Solomon, A.R.A. [*H.A.*].

I. By Sir William Richmond.

ARCHITECTURE, the mother of the arts, fostered her children Sculpture and Painting as well as other crafts; they honoured their mother in the niches she erected for them, the walls she provided, and with metal and precious marbles her structures have been enriched by cunning craftsmen. Architecture, like to music, is an abstract art; it is *per se* a constructive art. It is, as it were, the skeleton upon which rest and reside all embellishment and ornament, whose delights are growths from out of her vitality. Perhaps she is the most poetic of all the arts, limitless in power of suggestion, boundless in her attributes of majesty, endless in her functions, from those which provide the palace to those which are the habitat of peasants. She is the co-ordinator of all design, simple, restrained, exuberant, or fanciful, or only useful.

Her votaries are builders who design and erect, sculptors who design and carve, painters who enliven her severe spaces with the glory of colour, craftsmen who bring glitter and sunlight into her darkest nooks as rays of light into a cavern. The very simplicity of motives of restraint gives to this nobly constructive art the foundation of her impressiveness. Late, indeed, in history, Architecture wished to go alone: she withdrew herself, or was withdrawn, too proudly from her children. Hence arose the danger that ornament might be stereotyped and of trade manufacture, painting cease to add its magical charm, and sculpture be relegated to an independent and solitary mission. This sterility, partly the product of Puritanism, partly the fault of painters who set out upon a new venture, is passing away, and a return to a healthier union of the arts is growing, and evidently we are being brought closer into touch—architects, sculptors, painters, and craftsmen.

And, Sir, if I may be allowed to say so, this admirable change is in a large measure due to the Institute to which I have the honour to belong, because, more than in the past, the members of your profession are alive to the strength which union promotes. This Institute, more than any other artistic institution in Great Britain, is encouraging "fraternity," and taking more and more sculptors and painters into its confidence and within its ranks. Hence the Institute is becoming stronger, broader in view, larger in artistic enterprise, and, if I may speak for my colleagues, the sculptors, painters, and craftsmen whom you have honoured by election among you are gratified.

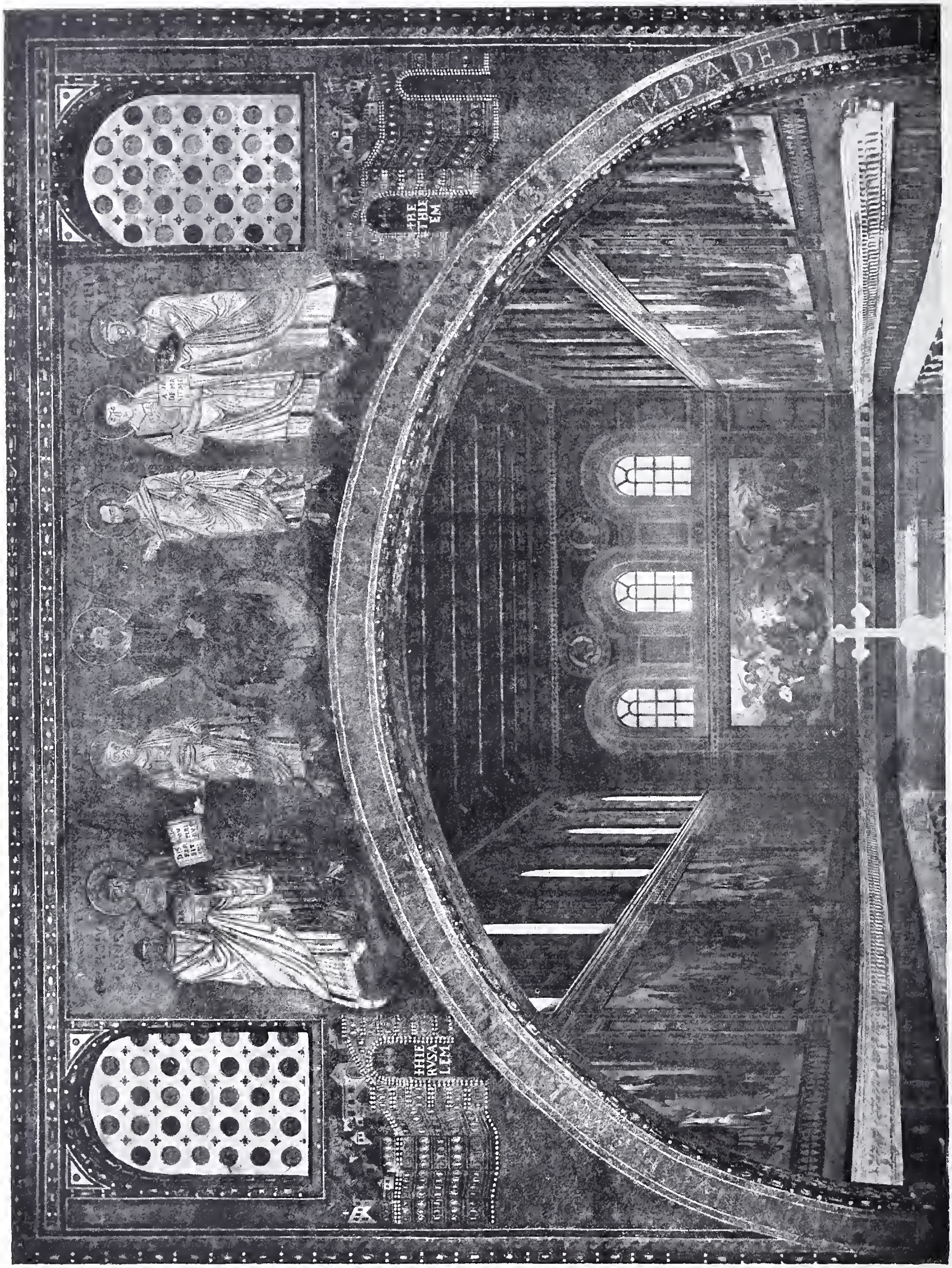
I feel quite convinced that sculpture will gain in dignity and restraint the more she becomes allied to architecture, and that painting in its highest branches, which are decorative, will also profit, and become more severe, less experimental, and less prone to ephemeral exploits.

I believe that the time is not far distant when the three great arts, together with the crafts, may again become one thing, each learning something from the other. Styles will vanish, and with them trade decoration and all which tends to a superficial and commercial supply. You have asked me to say a few words to-night upon one special branch of the arts, "Decoration," in which is included mosaic and mural decoration. But before I do so may I suggest a hope that a similar chance of expressing their views may be accorded to the distinguished sculptors of whom we are rightly proud, and of whom there are so many? I say this because all who have watched and are watching the progress of English sculpture must accord to her exponents continued admiration and respect for their abilities, which will grow in affluence the more they are associated with the art of architecture, being an art which the public seems disposed to forget, and claim for it only a position as a trade of utility. The great traditions which bind the past of architecture, sculpture, and painting may have been temporarily severed, but only temporarily, because, as has happened before, they have been kept alive by a few serious workers who do not believe that a new art is possible, any more than they believe that a new man can be created; and the great principles which have made art to be the highest factor in true civilisation will grow in usefulness as we their exponents gather together in closer bonds of sympathy. Now to my immediate subject. Union is strength. We have to educate an inert public, too prone to amusements, too hurried in the race for wealth to use their higher faculties, to cultivate their observation, and enjoy in peace what is permanent and beautiful.

I fear that the delightful method of "buon fresco" is for the present an impossible one to pursue in London or in any towns which are subjected to the vitiating atmosphere produced by disintegrating acids which are more or less destructive to lime, which perishes under their influences; but in the country where pure air is still obtainable I see no reason why "buon fresco" should not be adopted with quite as much security as in Italy in times past. But the walls of buildings to receive it must be secured from damp rising to them, penetrating, or descending. It remains for the architect to provide dry walls, and to maintain them so by solid and scientific construction. There is, however, one "proviso"—neither in the mixing of lime for mortar joints for application with extended layers upon walls or for the mixing for an intonaco should sand ever be used, not even river sand, which in the present polluted condition of rivers contains substances which are enemies to the proper action of lime and to its endurance, and these impurities are extended to every globule of sand. Marble dust should be used instead for two reasons: it is free from any poisonous ingredients, it is far *sharper* than sand, far whiter, and is in agreement with lime in all particulars. All water, either in the mixing of the lime and marble dust, or employed with the pigments, should be boiled before use. The palette must be simple; only the "earths" are perfectly safe. Fancy pigments are inadmissible. The painting must be direct and swift; care must be taken not to break up the forming crystals, to make sure of whose integrity it is unwise to work for more than four hours upon the same ground. It is also essential that the pigments and the intonaco should be ploughed together, so that they shall be incorporated within the intonaco, and not only lightly laid upon it, which if done the thin skin formed upon the intonaco is apt to sever itself from its foundation and fall off in powder, for the pigments have not been incorporated with their bed. I have examined carefully and minutely many frescoes in various parts of Italy; the result of investigation has proved to me quite satisfactorily that, provided there is no poison in the atmosphere, damp is the only enemy which fresco need fear. Retouching a fresco in tempera is dangerous, for two reasons: first, because the water necessary to the process is apt to set the lime into action anew, and so reduce the power of its pristine stability. All the frescoes which have stood best are untouched by tempera. The great and special beauty which "buon fresco" provides is a luminous quality more striking than any other method of mural painting; and, further, the very swiftness of technique which is indispensable ensures that subjugation of minute details to general aspect so essential to all dignified decoration must be observed. To be successful, all preliminaries, studies, and cartoons must be absolutely certain both in their relation to design, forms, and colours; so that the painter when he paints has only to think of his difficult but most fascinating technique. Subdivision of the various stages of development must be rigidly adhered to.

"Buon fresco" is obviously out of the question upon the outside of buildings in England; even in Italy it has failed to stand the climate. Mosaic is adaptable to exteriors as to interiors, but to be effective mosaic must be used lavishly, as in S. Mark's, in Santa Sophia, and in many churches and chapels all over Italy, especially in Ravenna. But mosaic demands another kind of design and drawing than any other material for decoration. It is, in fact, "building," building a design in little bricks of blue, red, gold, or silver; therefore the design which would be adequate and acceptable in fresco or tempera will not be so in mosaic. The translations of pictures into cubes is obviously absurd. Wonderful *qua* industry, as well as skill, are the mosaic pictures in S. Peter's, in Rome; but as works of art they are surely quite worthless.

Mosaic can do what no other method is capable of, but it cannot imitate except inadequately. It is an art that must be learnt, and it is a very difficult art because of its restrictions as well as on account of its wealth of possibilities, which belong *to it, and to it alone,* of all decorative methods. There are some essentials of it, one gold and silver, another blue, red, and white. Green should be used with care. The design must be clear, the drawing severe, the accidents few, the light and shadow rare. Is it not true that an architect should build for mosaic decoration if he intends to use it? He will give plenty of domes, semi-domes, alcoves, because mosaic looks best upon curved surfaces where it is least likely to come into competition with pictorial design. Not that I think plane wall surfaces should not receive mosaic—far from it—but an equal restraint from pictorial qualities is as necessary to their proper embellishment as upon curved surfaces; simple form, severity of design, few tints, much gold, and quality are the essentials to good mosaic. A building to receive mosaic should have few mouldings or frames; the framing of mosaic pictures should be executed in mosaic, and stringcourses as well as mouldings should be so designed as to be in harmony with the style which is essential to mosaic, and that is *severe.* I think that it was William Morris who said once to me, "A good barn with a barrel vault, many windows well recessed but small, several apsidal nooks, one stringcourse carried right round the walls,



MOSAIC. SAN LORENZO, ROME. (SIXTH CENTURY).

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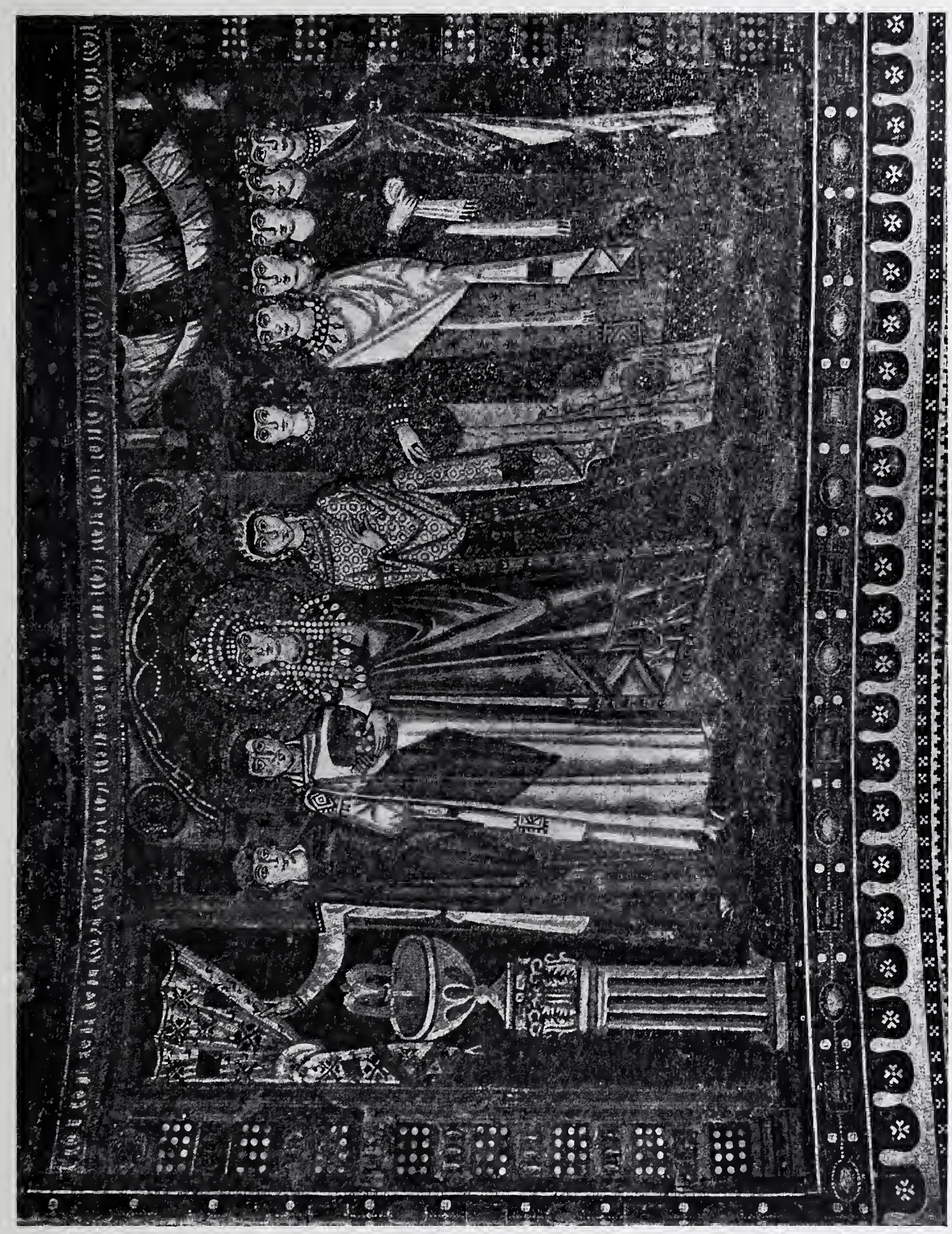

MOSAIC. SAN VITALE, RAVENNA. (SIXTH CENTURY).

NORTHERN ARCHITECTURAL ASSOCIATION

plenty of arches, and then cover it all over from top to toe with mosaic, how splendid it would be!" For whatever the architect designs should receive his careful attention; he may have in his mind an ambition for colour, for sculpture, or for a simple unadorned building. It is not much use to *dot* decoration about; surely it must rather be within the great scheme of the architect's invention, and growing out of it as an essential part of design, than an *application* here and there.

Where ornament does not grow out of the main structure, being a part of it, is it not futile and therefore artificial? And here comes in the necessity for coalition. So, if the architect decides to make a sumptuous piece of coloured decoration, he and the other artist, his coadjutor, must work together, from the first initiative to the last point of completion, if the final result is to be severe and homogeneous. I conceive that the designing of a building is very much the same as the designing of a picture or group of statuary: first, a rather vague vision, which gradually is formulated into a structural substance. We painters think sometimes in colour, sometimes in form, rarely of both at once; we determine that this picture is to be highly coloured, that one is to be as severe in form as possible; and I apprehend that much the same system of choice actuates the architect in the process of his aim or the quality of design which is paramount in his mind at its initiation. So it follows, does it not, that the architect must consider his decoration while he is initiating the plan for his enterprise as well as the elevation? Herein, I think, lies character!

I can quite conceive mosaic being used now as lavishly as it was centuries ago, and according to modern methods of architectural design, treating also of modern subjects so long as they are severely designed as a Japanese might do them; and also that the architecture in which they are contained shall be modern in all essentials, not necessarily at all Byzantine or Romanesque, but simply that it shall be in harmony with the material and spirit of its decoration. And here comes the difficulty: to do this the architect must be original, but on the base lines of traditions, not necessarily at all of those which belong to "styles," but on his erection of his own "style" upon the basis of congruity and fitness which the study of great examples has taught. To my thinking, in a well-built mosaic the construction is never hidden or the joints concealed; they certainly never were in the best work, the white or red joint giving quality to the tone and colour, as the marks of the brush in a good painting being left with judgment enhance, and do not detract from, an agreeable effect. The modern system of laying the cubes close together conveys the impression of an oleograph—an undesirable comparison surely. Of course in the treatment of floor mosaic another question arises; there it is impossible to leave the tesseræ apart, except in so far that they shall be held tightly by the cement. My experience has been that the mosaics which look best from a distance have a good wide joint between every cube; and especially is this the case where gold or silver is employed, otherwise the metal obtains an unpleasant brass or tin appearance, which leaves much to be desired. Of course there are many other considerations worth mentioning, but I have no time to do so in a short Paper.

The next best method for wall decoration to "buon fresco" is tempera painting upon a dry wall of lime and marble dust. The tempera used is the yolk of egg only, not the white; everyone, I suppose, knows that the yolk of egg contains a large quantity of essential oil, which when dry—and it takes a long time to dry thoroughly—becomes as hard as the hardest varnish. The colouring matter is sulphur; if the yellow tone is objected to, the sulphur can be extracted while the oil remains. But I think this is undesirable, because the yellow tint gives a very agreeable tone to the white lime. Lime well slaked and old is the best white for all tempera purposes: it was used by the illuminators, "that or ground egg-shells." But it must be very old and have lost its fire completely, though not its binding qualities. Almost all colours can be used with egg. They must be ground in water, not in spirit, and then reduced to a fine powder. The only vehicle besides the egg is white pure wine and water, and with certain colours which are apt to dry rather "husky" a little fig-juice or sugar, but very little, may be used with advantage. Blues and lakes require this treatment if they are to bear out in their brilliancy. I have tried many modern systems, Gambier Parry's and what is called spirit fresco, but I do not like any of them. Egg painting has stood the test of time; many of the wall paintings at Pompeii are in egg, and all the tempera pictures and wall paintings in Italy which are not fresco or wax are painted with egg tempera.

Wax painting is another method well suited to our climate, but it has always failed to be successful when wax has been incorporated with oil; wax and oil do not mix. Pure wax painting is extremely fascinating and very simple. The ingredients are the best wax dissolved in turpentine; a little naphtha added to them retards drying. The wax should be bleached quite white, and dissolved in heated turpentine; when cool it should have the consistency of thick pomade. The powder colours should have been ground in turpentine. They should then be mixed with the wax tempera and put in covered jars. The quantity to be used can be withdrawn from the jars and set upon the palette. The best palette is a glass table under which a spirit lamp burns, the heat from which prevents the pigments from drying upon the cold glass.

The wall to receive wax painting should be prepared with lime and marble dust. When perfectly dry it must be coated with a good layer of wax and turpentine, which should be finally burnt into the intonaco with heat from an iron or brazier. The process of painting is quite simple if the painter bears in mind to keep his tints separate, as in mosaic; when complete the surface is fused by heat and softly polished with a soft silk rag.

This is painting in wax. The method may be seen in the National Gallery exemplified by portraits on wood of the second century A.D. found in Egypt, and in many of the wall paintings at Pompeii and those also at Herculaneum.

I have tested some Egyptian wall paintings and have found that they were executed in wax and mastic; but I apprehend that these were done not with a brush at all, but with pastels composed of pigments ground in wax and mastic, and were applied to a warm surface, probably heated by the sun, finally the tints were fused by artificial heat. All the wooden sarcophagi placed in Egyptian tombs were soaked in wax and spirit.

Wax painting is perfectly durable on a wall; it is not so on canvas, because a blow from the back will cause it to scale. In England it would be advisable to burn the wax well into the wall with artificial heat. *Oil* painting upon a wall is quite inadmissible. If Leonardo da Vinci had painted his Last Supper in fresco or tempera it would have existed till to-day. All oil colour on walls where there is the slightest damp from behind blisters and scales. Indeed, oil painting should be entirely abjured in decoration. Every essay that has been tried in that vehicle has proved a failure. Viollet-le-Duc's patterns &c. in Notre-Dame are failures; every essay, notably in St. Cross, in Norwich Cathedral, and in others where oil painting has been adopted upon walls, has proved a grim and terrible failure; it is opaque and unpleasant both in colour and surface, and never can assume that brilliancy and refinement of tint which belong to the other temperas. Raphael painted one panel in oil on a wall—a figure of "Justice": it looks black by the side of the fresco and tempera pictures.

May I here start with an axiom? All decoration should be done upon the wall where it is subjected to environment, and not be *applied*. One cannot but feel in the "Pantheon" in Paris, that so much of the decoration done there is pictorial and not wall painting; even those refined and delightful designs of Puvis de Chavannes are pictures which would look better framed and in a gallery than they look upon the walls of a church among so much solid architecture. Their treatment is *atmospheric*; hence the wall bears the appearance of a great mist, which reduces its character of support.

It is safer, swifter, more sure, and more delightful work to paint straight upon a wall than to paint and then apply. Of course it demands energy and swiftness of execution to do it well. The environment, the light, tend to stimulate the painter in a way that a studio light can never do. Taken from their light and environment wall paintings *should* look wrong, and they do; so a decoration painted in a studio, however well it may look there, never looks right when it is set up in its proper place. I would urge painters to execute their works *in situ*, notwithstanding much personal discomfort, even in a dark corner, because that dark corner is the place of the picture, which if painted in full light of a studio will be quite disappointing when it is placed in an obscure light; and the reverse holds good also. We all know how much every easel picture loses when placed in another light than that in which it was executed, and how slight a change of light affects its aspect. And if this holds good in a minor matter, how much it must do so in a major. No, depend on it, wall decoration should be all done *in situ* if the result is to be satisfactory. All design is extremely sensitive to environment and lighting. Which of you architects would like your building to be removed from a hill to a valley, from a street to the country, from a gloomy city to an illuminated plane? I conjecture that you would be displeased!

And the same law of fitness holds good as regards sculpture. A statue designed to be set in a niche should belong to it and to nowhere else; and more, it not only belongs to its immediate but to its less immediate surroundings also, and is out of place away from them. Take, for example, those noble efforts of sculpture upon the exterior of Rouen Cathedral. Beautiful as they undoubtedly are as separate works of art, they belong to *that* façade, and would be out of place elsewhere. They harmonise with the architecture from which they are growths, not appendages. As there is unity in the main structure of a building, a consideration in regard to light and shadow, regard for surroundings and their silhouette as affecting a contemplated design of a building, so that unity must be preserved throughout, and that unity must be generated in the mind of an architect, who the more he is in touch with sculptors and painters, the more he will realise that his art and theirs are ruled by exactly the same fundamental principles, and as they work together each artist will acquire broader views and a more comprehensive regard towards his own special art when he thinks in conjunction with his colleagues.

Of course we all know that, being unaccustomed to colour in or among architecture in modern times, prejudice is strong. I daresay some of us would be shocked if we saw the Parthenon, Westminster Abbey, and most of the English cathedrals highly coloured, but there is no doubt that they were, and further, that uncoloured buildings are of modern invention—I mean dating from the late sixteenth and early seventeenth centuries, at the period when both sculpture and painting were growing away from structures to the detriment of all the arts. Everyone here knows this to be true. There is considerable difficulty for a painter accustomed to execute small or moderate-sized works which are to be framed and exhibited, when he finds himself confronted by commanding restrictions. The geometric or architectonic treatment of pictorial design in England has been extremely rare. In a period when a good deal of mural painting was more or less in fashion, when Verrio, Thornhill, and others of the same genus were working, wall painting was quite misunderstood. Indeed, we may say, and with truth, that previous to the middle of the last century wall decoration, in its true sense, was non-existent in England; it had ceased to exist with the seventeenth century, and even before. I am now speaking of pictorial rather than pattern design. All designs from Giotto to Raphael, either in fresco or tempera, are decorative in the distribution of masses of colour, of shapes, of silhouettes; they were conceived geometrically, however cleverly the geometry may have been concealed. Rhythmical design is impressive, monumental. The poetry and meaning of line bears relation to metre and rhythm in verse; but this is a subject so important, so interesting and absorbing to contemplate, that it would be quite out of the question to do more than allude to it in a short Paper.

Certain colours "carry," others do not; certain colours retain more or less of their brilliancy at a distance. Dark reds and blues, however brilliant they appear near at hand, become black when seen from afar; dark green becomes a dirty brown. The telling colours are white, yellow, all the ochres, red up to Indian red, pale greens, and pale middle blues. Our early English decorators were extremely interesting colourists. The decoration of the Angel Chapel in Winchester is an admirable example of fair and delightful colour. Mainly it consists of pale, middle, red ochres, and white; and I *think* that the tone which appears to be blue from below is composed of nothing but black and white, which, by the way, among warm tones is a mixture which produces a very gentle and refined blue. That the ancient Greek decoration was extremely simple there is no question. Pliny's list of the colours upon a Greek palette is probably quite accurate. I expect that the wall painting of the Greeks was a kind of cross between the vase painter's design and the sculptor's relief. There could have been no confusion or spottiness. The Greek mind abhorred confusion or absence of definition. There are in the Museo Borbonico in Naples two or three Greek pictures, quite small—one of Perseus and Andromeda, which is as fair as a good Whistler, only definite, and beautifully drawn; also a little marriage piece, coloured as a garden is in spring, and others, which give a very fair idea of what the Greek masterpieces of decorative painting were like. Arguing from these little specimens, probably painted by Athenian or Magna Græcia itinerant artists—because we know that even in those days, and earlier too among the Egyptians, there were pattern-books already—the splendour of the celebrated wall paintings in Athens has not been exaggerated by historians.

And now, superficially indeed, I have put before you a very few ideas and a little result of experience. I have not alluded to any of the photographs which I have lent to the Institute for the evening. It will be pleasant to talk over them together presently.

II. LANDSCAPE PAINTING AS A MEANS OF DECORATION.

By Alfred East, A.R.A.

I WILL not attempt in a Paper of ten minutes to enter very fully into the claims of landscape as a medium of decoration. I would rather endeavour to point out to you that it has some claims in that direction for your consideration, and to ask you to give the matter a little thought in view of such a purpose. In the suggestion of this idea I am labouring under a very serious disadvantage in my inability to point out to you many eminent authorities of the past to support me. But I don't want their authority or their support; I want yours. It is all very well to be able to refer you to this authority or to that, and to shelter oneself behind some accepted precedent—that is a comfortable refuge for the destitute. I don't wish to refer to the dead masters. I would rather refer to living men and women, and ask you this question, and I should like to have your answer formed upon the actual merit of the claim rather than an answer found after a search for precedent. There is too much reference to precedent and, if I may venture to say so, too little confidence in ourselves. We forget these very precedents were formed by the men who had the courage to do a new thing because they esteemed it just and true; and why should we not have the courage to do so ourselves? It is so easy to write or speak of things already accomplished, and to point out their qualities and peculiarities, and to talk of dates and names of their producers; that is all very well for the historian, but we have to accept the responsibilities of our own time as they had; and I believe that when people deplore the loss of this art or that art, they would better have said that we had lost the courage which, in the past, had produced them.

In these days we have been almost compelled to specialise, and to such an extent that we have become somewhat blind to the claims of other branches of art, which might be useful aids to architecture if intelligently used and in their proper sphere. In this respect has the art of landscape painting greatly suffered. It was born into the world hampered with associations from which it took a considerable time to shake itself free, and I am not prepared to say that it has done so even now, as I shall attempt to show later. In its very earliest days it was relegated to a corner. It was seldom allowed to show itself, and, like most youngsters, was sometimes allowed to be seen, but not heard. Alas! it has often been seen in the past showing the influence of that strict régime under which it was brought up. Its childhood was marked with that prim seriousness of deportment which characterised its elders. Instead of the joyousness which should be associated with youth and hope, it was told to keep its place, and that place was always in the background. So little was landscape painting esteemed, that it was only used as an accessory to the figure painter; they said it was a nice foil to their figures, a kind of velvet plush upon which to display their gems. It was scarcely tolerated when it did attempt to start out on its own account. They succeeded in making it conform to the rules that governed their own household. That was a concession, and when it dared to exert its entire independence it met with their astonished surprise. They would scarcely allow it to have a name, for we see in early landscape the title of the picture derived from the introduction of some small incident of minor importance and of insignificant value. Why, gentlemen, not long ago, a farmer asked a cattle painter if he would paint his prize cows, and, after the price had been arranged, said: "Yes, that is all right, but you will throw in a bit of landscape." So it was frequently with some of the old painters. They threw in a bit of landscape, and generally of a very poor quality. But what could you expect since the patron got it for nothing? Even as late as the time of our grandfathers, it is said that a would-be wag of a figure painter shaded his eyes at the varnishing days at the Royal Academy to keep out the light of one of Turner's suns. It is also told of a more obscure painter of genre that he put up his umbrella when he came near one of Constable's storms. They thought landscape painting amusing.

I have said that landscape painting has not yet gained its complete freedom, or worked out its full destiny; it has been almost ignored as a medium of decoration. It is true that it has been countenanced by the paper stainer, and now and again a bit of it is put into glass. But the architect has kept it, like the figure painter, strictly in the background. It has practically been ignored in the desire for the reunion of the family of art. Fruits and flowers, painted and carved in stone, have had a period of prosperity, enhanced frequently by the joy of gambolling cupids of superb rotundity, who are supposed to symbolise to men and women great thoughts and high ideals. These industrious youngsters are

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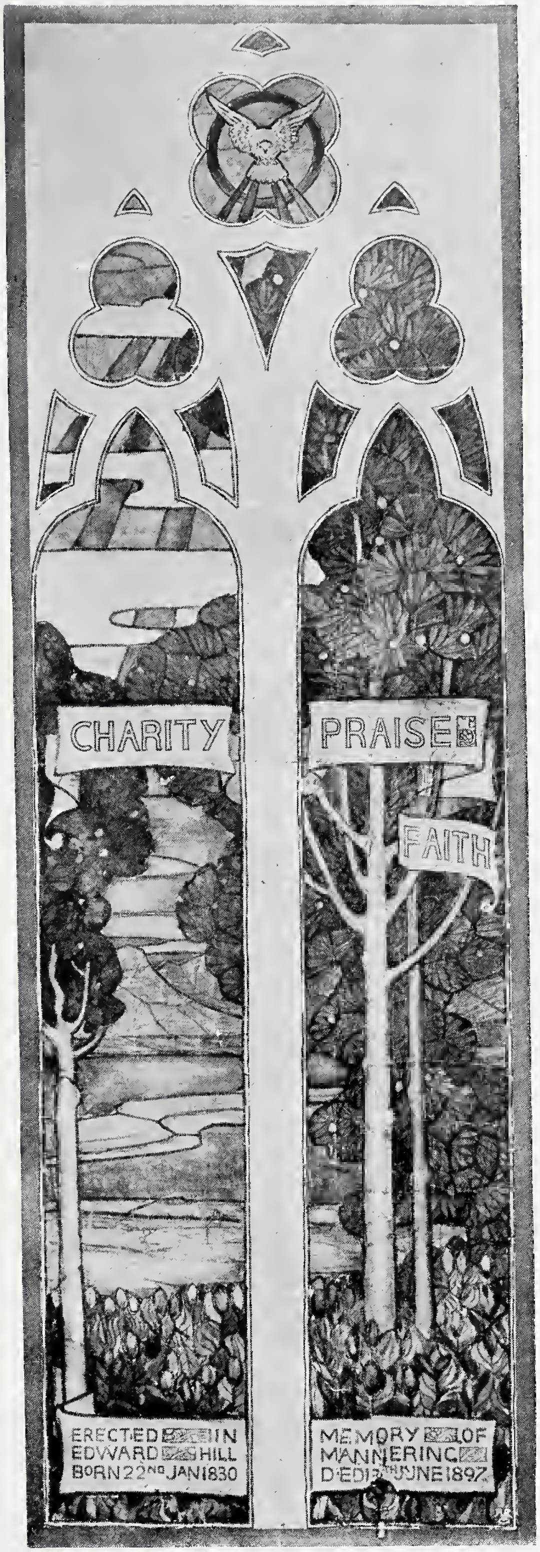
Description of the Stained Glass Window in the New College Chapel, Avenue Road.—The design is symbolic of the character of the man to whose memory it was erected. The predominant quantity is the olive tree, representing peace; the oak to the left, strength. The river of life flows through the plain after it has passed through the mountains, which represent the difficulties of his early life, and at length finds its way to the flowery fields of success. The rays of the spirit of faith unite the whole composition.—A. E.



STAINED GLASS WINDOW DESIGNED BY ALFRED EAST, A.R.A.,
IN THE NEW COLLEGE CHAPEL, AVENUE ROAD.

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never at rest: if they are not offering you extravagant quantities of fruit and flowers, they are posing as workmen with mallet and chisel, or in their lighter vein gambolling over your ceilings and cutting capers between your architectural features. They are always up to some mad prank; and, not being satisfied with the warmth and comfort of your rooms, have crept out over your doors and windows where the chill air has turned them into stone, caught as it were in the very act of emptying their urns of fruit on the heads of the passers-by. We have had also decorations of the fruits of the earth painted realistically in those meretricious borders by Raphael in the Vatican; but what of the great and beautiful earth itself? Not from the time of Raphael to the time of the gay Fragonard, whose incident was more suggestive than his art, do we find pure landscape accepted as a medium of decoration. If it has received some attention in certain isolated cases, it was treated with extreme caution and diffidence. Even in the work of that great master Puvis de Chavannes, he feels he must introduce important figures, were it but to give the *raison d'être* for a title. I will ask you seriously, Is there no room for landscape painting as a medium of decoration? Would it hinder the aim and the intention of the architect to use it to decorate his buildings? Could it not conform to all his conditions as to scale and colour? Nature has an unbounded range, from the winter's snow to the full rich tones of autumn, and between these seasons she offers you an inexhaustible supply of beautiful and suitable arrangement of form and colour. Nature is generous enough were men brave and strong enough to make use of what she offers them.

The architect may desire a certain colour arrangement to complete the object he has in view; does he think that he can find what he wants in landscape? He has, I think, the right to demand certain conditions as to scale; that the scale of the decoration should be suitable to the scale of his building, and to refuse anything that would belittle his conception of suitability; he has also the right to refuse anything that is alien to his ideal. But I think you will agree with me when I say that to accept these conditions, and to work within them so that there is no apparent effort in so doing, is in itself an artistic accomplishment. I believe he has no reason to fear that in the adoption of landscape he endangers any of these principles; he may find in such decoration the sentiment of his architecture, the purpose of its being supported. If he has built a place of worship there is absolutely no reason why the walls or windows should illustrate the lives of the saints. This was well enough in an illiterate age when they may have been necessary for other purposes than decoration. But to-day, when we have a wider horizon of thought, we may feel in the grand repose and peace of nature the elements which will suit his purpose, which will be to the thoughtful as beautiful and as suitable as the literary story. There are things in nature which suggest a lofty purpose in their creation, and which reveal the high purpose of the Creator. There are also materials in landscape by which the artist can convey the sentiment of praise, if a decoration be as I describe, and conform to the first principle of decoration, namely, fitness for the purpose, and it can express a sentiment as pure, as high, and as noble, as a composition of figures, which may or may not express something that is not entirely decorative; for such compositions often lose in their decorative qualities in proportion to their gain in their illustrative qualities. I would not for one moment say we should not have figures in decoration, although we have the authority of Arab architecture for their exclusion. I would ask you, is there no place for landscape? That is my question. I cannot imagine any member of this Institute tolerating for an instant any loud assertiveness of decoration in which anecdote completely distracts the attention of the spectator from the fine proportion of his building. He is not annoyed, like the painter, when the spectator remarks, "What a beautiful frame!" You want nothing to hinder the conception of perfect completion, wherein all the arts which are employed for a final end shall sing together. A building is artistically complete where everything is in its right relation, where all the values are just. My claim for the consideration of landscape painting as a medium of decoration is that it can conform to your high purpose, and that it does conform to your just demands.

III. By Solomon J. Solomon, A.R.A.

SINCE you, Sir, invited me to take part in this symposium, in spite of the consciousness of my shortcomings, I felt I could but obey your summons; for it occurred to me that in inviting me you were perhaps recalling the remarks I had the boldness to make on a former occasion anent the position of the architect and the painter.

Your own, if I may say so, admirable Presidential Address—so sympathetic and so well received—touching as it did the same ground, and the fact that Sir William Richmond and Mr. East were to treat this subject of decorative painting in their respective methods, encouraged me to believe that it was one which the body of architects desired to consider in all its bearings.

With the short time at my disposal I propose to devote myself to some practical issues: in the first place to suggesting some answers to the objections raised by architects when discussing decoration; and, finally, to making an appeal for the establishment of a School of Decorative Art.

It is generally urged that the finances at the architect's disposal do not admit of the inclusion of the painter's art in his schemes. Well and good. But the edifice outlives the author even when it immortalises him, and he, more than any other artist, may be permitted to provide for the future. Granted he cannot see his way to complete the decoration of the building, let us say a building of a national character; the kind of erection that might well contain some pictorial record of its history, its national utility, its character—some provision, I would suggest, some spaces allotted, some indications given to future generations to carry further the work the lack of time or means at his disposal constrained him to forego—he might well make. And did he fear to lose that hold over the whole of his work he rightly claimed, why not go a step further, and broadly indicate the kind and style of decoration he would have others introduce?

Another architect will find that our variable climate plays tricks with existing canvas decorations, causing them to sag and loosen, and thereby to detract from, rather than add to, the dignity of the *salle* which they are intended to ornament. This difficulty is of course found most frequently in ceiling paintings, and the fault lies, I presume, with the use of too large a surface of canvas, when sometimes the architectural features which should be real are imitated by the painter.

When the ceiling is really architecturally treated as it should be; when, for instance, in the great ceilings of the Doge's Palace, a vast framework is designed to contain pictures of varying shapes, such as oval, octagonal, oblong, square, and others conforming to the spaces of the interstices left; when the surface of painting is but a third of the whole, little real danger would result. That these architectural features are almost invariably necessary is demonstrated by the fresco decoration of the ceiling of the Sistine Chapel, where painted imitation of a framework was resorted to by Michael Angelo within which to arrange his series of subjects.

Apropos of fresco, few practical men would in this climate, or, in fact, in any other, use a fresco ground for painting, when the "mat" surface, its chief quality, can be obtained by the use of suitable mediums, and when far greater richness of effect can be produced by other methods now ready to our hands.

The danger of discoloration in these days of electric lighting is a question that need not be laboured; and for a general answer to the fears expressed it is only necessary to turn to France, where most public buildings are decorated by the painter, and where none of these technical troubles to which I have referred are at least apparent; and allowing for the slight difference of climate, all that is necessary in our own to obviate them is a little extra care, a little more foresight.

I would crave your attention more particularly to the suggestion I would make for the promotion of a school of decoration, not with the object of competing with existing schools, but of supplementing them.

Perhaps it would be as well for me broadly and tentatively, so that there need be no misunderstanding as to the direction at which I am aiming, to give you some idea of the institution I feel, I am sure with many others, is becoming more and more a necessity—a school common to the architect, the sculptor, painter, glass designer, and wood carver, for the use not only of the advanced student, but equally for the full-fledged craftsmen in the various arts who desire a special training in the arts of decoration.

Professors there would be representing all the branches concerned to lecture and to teach. Studios furnished with reduced models or studies of pictorial decorations in their settings, applied sculpture, glass, wood-work, and so on. All conceivable facts, measurements, scale, proportions, anything and everything for the use of the student that could be collected, carefully tabulated, and arranged. And then one little bit of detail. The creation of travelling studentships, enabling students to travel in pairs. An architect with a painter, an architect with a sculptor, and so on, with provision to make reduced copies of fine examples of art in their settings: the results going to enrich the school collection, so that by degrees these models might replace the photographs or other less useful authorities.

Now that I have submitted to you vaguely the kind of institution that is in my mind, let me try and prove its necessity and its possible advantages. I shall deal mainly with painting.

To begin with, in France there is a school of decorative painting in the Beaux-Arts, and there is no lack of demand in that country for the product of those schools.

In the days when the decorative artist took into his studios student assistants, there may have been less need for a school; but even then the experiences gained, apart from the all-important technical ones, were limited to one or two styles only. In these days of innumerable styles of architecture a wider range of architectural knowledge and of cognate decorations is imperative. Most decorative pictures are built up on architectural lines, and more often than not architectural features are abundantly introduced. We know already what is thought of the painter's architecture. And here would be an opportunity that no self-respecting master-builder would willingly let pass, to put right the errors through which he has suffered so long, perhaps, in silence.

Should a benign confrère of yours desire, even only from philanthropic motives, to engage a decorator, he would probably be at a loss to find the man he wants; he would not willingly confide in a painter who has not had some technical training and experience, be he ever so good with his easel pictures. And I should not blame him for his reluctance to gamble in chances. Practical men know that he who would essay such work without proper equipment, and who has to learn his drill on the battle-field, is doomed to initial failure. We all know, and some of us can speak feelingly of, the man who, after spoiling his chances, begins to see what he might have done. Even Sir Joshua Reynolds discovered, rather late in the day, that he had been painting pictures, and not designing glass, for the windows of St. John's at Oxford.

At this school the architect student will work in the company of sculptors and painters. Each will learn to sympathise with the aims of the others, and so in later life be prepared to work, as they should, into each other's hands.

Without such a school, where the chords of tradition can be gathered in and handed on, each would-be decorator must begin with much loss of time and labour *de novo*. He will feel tied far too closely to certain fixed models. He must spread his roots instead of his branches, for there is little real and abiding progress where the evolutionary link has been snapped, and the unaided experience of a lifetime, spent as it must be in much travel, observation, and perforce empirical effort, is inadequate to the calls of fine decorative art, except perhaps in the case of a genius.

There is already too much amateurism rampant in this country. We snap up too many ill-considered trifles, and the kind of knowledge we seek without an adequate training in youth is uncertain, and so often unreliable.

The advantages of a decorative school, to which almost every painter and sculptor should go for at least a year after the completion of his usual training, should be very great. They are too obvious for me to enumerate in detail before such an audience as this, who, I believe, would see in it similar benefits for the student of architecture.

It should react most beneficially on the general art of the country. A sort of broadway would be created along which the young artist would discover direction, and not go losing himself in the scores of byways in which he is induced to wander in the hope of discovering new ground, congenial soil, only to return, often too late, to some worn path, after losing, as he so frequently has to confess, many valuable years in his capacity of free-lance.

Again, a fresh stimulus would be made to a demand which is lacking to-day, partly because of the want of unity that has been felt among the varied artistic workers—which condition of things one rejoices to see is now giving way to a better understanding between them.

To this improving condition is due the possibility of discussing such an idea as the one I have ventured to advance, which should bring us all on a common ground to do what we can for the good of the arts.

DISCUSSION.

The President, Mr. John Belcher, A.R.A., in the Chair.

Sir ASTON WEBB, R.A., *Past President*, who rose at the instance of the President, said he felt himself altogether unworthy to propose the vote of thanks, but he did so with the greatest pleasure, although with much diffidence. One thing he could speak of with certainty, viz. that they had all enjoyed a most enchanting and delightful evening, thanks to the three gentlemen who had favoured them with their Papers. One mistake only could he find in them—viz. that they were too short. It had, he believed, been impressed upon the authors that they were not to take up more than ten minutes; but they could have done very well with at least twenty minutes or half an hour from each. He was afraid it might be laid at the door of architects that they had not always given due opportunity for decorative painting. It had, however, been shown that evening that there was a desire to alter this state of things. On the other hand all would admit that in our damp climate there were difficulties in the employment of decorative painting. Sir William Richmond, whose knowledge was so great in this particular branch, had given them some valuable suggestions as to the execution of decorative painting, and these would be printed in the Journal. Damp was not the only obstacle they had to contend with. He remembered the case of the chancel arch of St. James the Less, Westminster, where the whole of the wall over the arch was decorated by Watts with a great subject; but within twenty years it was invisible, and it had had to be replaced by mosaic. He had not the technical knowledge to know what media were employed for that painting; but when failures of that sort occurred, it made, not only the architect, but also that unconsidered morsel the client a little hesitating before he adopted this mode of decoration for his building. Sir William Richmond had referred to the closer alliance that was being brought about between the arts of painting, sculpture, and architecture. He (the speaker) was only expressing the feelings of architects when he said that their desire was to work more and more with painters and sculptors. He did not think architects were the assertive persons that they were said to be. There was nothing they would like better than to have their walls decorated by painters of ability. But if they were to obtain the co-operation and the help of painters of to-day to decorate their buildings they must see that their architecture also bore the print of to-day; they must impart to it some modern feeling which would inspire the painter with modern feeling for decoration. To go back to a strictly traditional Gothic and to expect modern painters to fill in their spaces with strictly mediæval figures was more than could be expected, and if those were the lines they were going on they would fail, and fail disastrously, in gaining the co-operation and support they looked to from painters and sculptors. English painters of Hogarth's time painted large spaces on buildings which were to become permanent. Hogarth—the father of English painting, as he had been called—in gratitude for the benefits he received at St. Bartholomew's Hospital, painted the great walls of the staircase there, and his work remained to the present time. All would regret if the necessary enlargement of the hospital should necessitate the removal of those paintings. In Dean Street and other streets in Soho, even in very poor houses, whole staircase walls would be found painted from top to bottom in a great style by English painters of about the same period. He was not sure that the painters of the present day were so ready and willing to paint staircases as their predecessors appear to have been. That might be the fault of the architects. But if it were so, he was sure they were all prepared to try and alter it. There was a magnificent opportunity waiting for the decorative painters in the great Roman Catholic Cathedral at Westminster, where the architect had entirely subjugated himself to the painter, and had left great vaults and arches without a single architectural moulding upon them. They were looking with a little anxiety, but with great hope and with great interest, to the way in which the painters of this country were going to finish that building. Sir William Richmond, in speaking of mosaics, had laid stress upon the desirability of showing the joints. Architects were very much alive to this in their own branch of work: brickwork and stonework put together in the right way should show the joints; their work was greatly enhanced and improved by it. The old bricks of Hampton Court Palace varied from an inch and a half to two inches, and the joints were an inch wide. The effect was that of white lace-like work on the brickwork, which destroyed the heavy red, and gave a charm to it while it was new, without waiting for age. Another point referred to by Sir William Richmond, which must appeal to all painters, was the advantage of decorative painting over easel painting, in that it was painted for a position which could not be changed; that the light in which it was painted was the light in which it would be always seen. They all knew the great difference there often was between a picture in the studio and as seen in a room. That was often put down as the fault of the architects—that their rooms were not suitable for pictures. He would venture to suggest that perhaps it was the studio that was not suitable, and that the picture was painted under a somewhat false conception. People will not dine or sleep with a top light—there is no doubt about that. Another point of recent years was the extraordinary liking for white in their houses and buildings; he had heard it called the leprosy of whiteness. No doubt it saved an immense deal of trouble; there was no need to consider about it; the whole thing was painted white, and done with. But that was not decorative painting; they must look to the painter to help them to decorate their buildings in some more intellectual manner than by merely painting them white. Mr. Alfred East had given them a very delightful Paper—far too short—on the advantage of landscape for the decoration of buildings. He did not think it required any pleading at all: a landscape, a sober landscape such as Mr. East himself painted in long panels, he could imagine, would look extremely fine along the wall of their own Meeting-room. He wished Mr. East would do them one, just to show how it ought to be done! In sculpture, too, trees had certainly been largely employed as decoration. Mr. Frampton and others were fond of dividing their subjects with standard trees—stems of trees with leaves on the top—it had become a general form of decoration, and a very charming and effective one. He could assure Mr. East that there was nothing against trees so far as architects were concerned. Passing on to Mr. Solomon's very suggestive Paper, his principal point was that they should have schools for decorative painting. That they must all agree with. One difficulty of the decorative painters was that painters as a rule—and they admired them for it—liked to do their own work with their own hand. As regards great buildings, domes, arches, and great wall-spaces, it seemed to him that that was an ideal of perfection that could not be carried out; the help of others must be secured; and it would be the highest aim of a great painter to train others in his school to assist him in carrying out the work which he designed. In decorative painting the great thing was design, and when that design was settled in scale and in colour, it was absolutely essential that others should be called in to help the painter to execute it. All the great Italian painters had such help. Verrio, who painted the great picture at Christ's Hospital, had tried to do it all himself, and had had to give it up when it was half through to young men, who completed it very badly; but if he had bestowed all his time to composing and designing the decoration of the whole, and had given it to others to work out, the result might have been better. He did not understand Mr. Solomon to suggest that they should have a new school, because there were the foundations, and very solid foundations, of two excellent schools in which this work which he proposed could be carried on. There were the Schools of the Royal Academy, where students in painting, sculpture, and architecture worked side by side; and the Academy endeavoured to encourage this by giving to students from time to time a commission to paint on the walls of the Academy premises some of the designs for which prizes had been awarded, and some of these had been successful. If that could be carried further, they would have made a very good commencement. There was already a wish for the architectural and sculptural students to work together and have classes together, and that seemed another way in which Mr. Solomon's idea might be carried out. Then there was the Royal College of Art at South Kensington, which for years had been working on those lines, and which in Stevens's time had produced a great deal of excellent work, and was at the present moment producing excellent work also. Both the institutions mentioned merely wanted the recognition and encouragement of the public to do what Mr. Solomon proposed. In a very small way he himself had had the help of the students of the College of Art to paint a ceiling, and they had done it extremely well, and had, he believed, enjoyed doing it. He was now calling in the help of some of the student-sculptors to carve some figures on one of his buildings. It was an encouragement to them, and they entered into it with great enthusiasm. It would be a pleasure to any architects who employ any of these young men to work upon their buildings, taking the trouble to control and advise them, and impressing upon them that both painting and sculpture, in connection with architecture, were full of difficulties and restrictions; but they soon found that the joy and pleasure of getting over those restrictions and difficulties amply repaid them for the trouble they had been put to. He had great pleasure in proposing a most hearty vote of thanks to Sir William Richmond, Mr. East, and Mr. Solomon for their most suggestive and delightful Papers.

Professor BERESFORD PITE [*F.*] said he rose with very great pleasure to second the vote of thanks to the distinguished artists who had done them the great honour of coming there that evening to read their most interesting and valuable Papers. He was also very much obliged to Sir Aston Webb for mentioning so clearly the fact that at the Royal College of Art there was in existence practically the system that Mr. Solomon desiderated, and he hoped that early to-morrow morning Mr. Solomon would pay them a visit. He would there discover not only that the students in the four schools, of architecture, design, modelling, and painting, worked together; not only that they were obliged each one to share in the work of each of the four schools, but that in the course of the year they travelled abroad in two series to work together—painter, architect, sculptor, and designer. Happily they had two sets of travelling studentships, a long one of three months, which was awarded in each of the four schools, and a short one of some six weeks, which was also awarded every year. Mr. Solomon, he knew, would be very much encouraged by hearing that his good idea had been already favoured with execution by their paternal Government. Groups of painters, architects, and sculptors travelled together, studied together, brought back their work together, and showed that the day had come already when those artists were working hand in hand. Might the happy day soon come when ladies and gentlemen present would have the privilege of employing them! Mr. East would have to convert the sculptor, before he converted the bricklayer and stonemason, to a landscape as a means of decoration. What was meant by decorative painting? Was there not a lurking idea that a decorative painting was a picture without atmosphere and perspective? He fancied so. That idea would have to be dispelled if landscape was to become a means of decoration—that solemn and beautiful and altogether modern art which took the moods of Nature, with her mists, and her distances, and her lights, and transmitted them so delightfully by canvas into an enduring reality. But if that art was to sacrifice those fleeting, evanescent moods of Nature, to wave the atmosphere away, to solidify the perspective, and take its place between pilasters and solid moulding, it would have to cease to be landscape art. It would become Japanese pattern design, and as such very useful, very hopeful. Landscape would have to pass through the crucible of sculpture before it could come down to the level of the more homely but more practical building art. But was not decorative painting after all, was not decorative art after all, or was not the decorative picture after all, a picture which was merely suited to a position?

No definition as to the absence of perspective was needed, no definition as to absence of atmosphere was needed, provided that the decoration was suited to its position. He must confess a whole-hearted sympathy with Sir William Richmond's criticism that when atmosphere was represented on a wall the sense of solidity necessary to that wall vanished; that the mind could not at once comprehend distance in panel which supported superstructure. They were unfortunately compelled by custom to admit distance and perspective into such panels; but that recognition revealed the fact that they had lost, unhappily, the real sense of building; the real sense of enjoying the value of the whole; the real feeling of enclosure and support which was the basis of architectural art. Till they thought through their stucco, and through their wall papers, and felt the bones within their building, they could not derive genuine architectural satisfaction from the design of its structure, or the structure of its design. This was a very important question which had been brought before them that evening, and he was very much obliged personally to the Council and to the President for making it the subject of discussion. He ventured to think that no subject was more important. During the last century they had witnessed pass across the scene some of the greatest painters of English history. They had now with them artists who were second to none; and during the same period they had had architects who had ventured to arouse within their breasts some hope that, after all, England was not a second-rate country in architectural matters: their ecclesiastical and their domestic art could challenge comparison with the art of any other country in the world; and one was glad that it was so recognised by Continental nations now. But, unfortunately, the great painter and the great architect had not yet been fused in the architect (he must call him the architect) who could decorate; he had not yet come. Now why was that? Probably the fault lay in education; but before they could predicate the education necessary to remedy the default, they must recognise the fact that no architect could by any friendship, or by any mere community of idea, or any artistic fellowship with the painter, succeed in inducing within that painter the architectural sense. And conversely the painter could not infect the architect by friendship, or by a sense of sympathy, or by a mere expression of harmony of ideas, with his standpoint. A school of decorative architecture had to be formed, and had to be formed from the roots upwards; and he ventured to think that if architects would recognise that they were living in an age which demanded great buildings, but had not got an architect to decorate the great buildings, they would see that there was something besides construction, essential though that was; that there was something besides the antiquarian squabble as to the character of the style, important though that was; and that there was something besides the professional politics which were eating into the vitals of the Institute, and which were really destroying their enthusiasm for their art; there was something more essential to the existence of architecture as an art which they had not yet laid hold of. This subject was brought before them once in a way; septennially, practically, they had the pleasure of Papers such as they had had that evening, and then for the next few months they should resume their professional political squabbles. In the early part of next Session they should discuss Education, then go back to their squabbles again. Then they should have a President who would suggest a Paper on mosaics, and then go back to their squabbles; then have something new, and then back again to their squabbles. If they really recognised that they were living in an age which demanded greater decorative building, which demanded a school of architects able to undertake the decoration of those great buildings, he thought they should have taken the first step towards realising that there was a scope for education in this matter, and that the mere sentiment, which had been so eloquently expressed and pleaded for by Sir William Richmond—and they knew how deeply he felt it, because he reverted to it again and again—represented a real need; and it was their duty as architects to recognise the fact that they had neglected decoration; that they had been concerning themselves with matters far below the full measure and scope of the architect's ideal; and that there was in this matter of the proper decoration of their public buildings a field for them to enter in and to take possession of, and to supply a great public need. He would only just suggest to them when they began to contemplate the whole subject that it lay far beyond the ken of those who merely thought it was necessary to call in a sympathetic painter to decorate a great building. They had to go behind the structural ornament, and begin to realise the first principles of ornament as decoration, painted or laid into the spaces of their architectural forms. They had to take good care to discuss its value, and its placing, and its relation to the ornament by which it was laced down, and by which it was tied to the building. They had to feel that they grew from the structure through the form to an increasing value of material, such as marble, bronze, gilt, to pure colour in all its fulness and richness; on which, again, they laid the filagree of the goldsmith or the fine ornament of the lacemaker, and to pass from it into the sphere where figure decoration became apposite. Possibly into that sphere might then come chiaroscuro, atmosphere, and the higher qualities of didactic art. All this lay before them—and they did not touch it. Happily, the Institute was now in possession of a prize which it was able to devote annually to a student who was prepared to take up the study of colour decoration, which was now awarded annually only for historical studies. The student went abroad on historical study. Practically there was no one here yet with any higher ideal than that of just feeling the responsibility of recognising the fact that there was such a thing as colour decoration. Might they that evening take a solemn vow to forswear professional politics and come back to the fundamental principle of the Institute, and seek to advance the art of architecture in that very great field that lay open to them at their doors.

Mr. H. HEATHCOTE STATHAM [*F.*], in supporting the vote of thanks, said he should like to say how much he admired the practical character of Sir William Richmond's Paper. They could always have plenty of theory, but Sir William Richmond, in his Paper, had given them the practical experience of an artist who had been working in those different materials and studying them, and really telling them how the work could be done. He was also very gratified at hearing Sir William's remarks about mosaic, which he (the speaker) had always thought was so peculiarly a form of architectural decoration, because it was a built-up picture, a kind of architecture on a small scale. He ventured to suggest whether, in talking of decorative art, and especially decorative painting, painters and writers on art were not often making a confusion by using the word "decorative" in two different senses. The very first time he had the pleasure of meeting Mr. East he remembered his remarking that landscape painters were just as particular about their lines as architects were. He (the speaker) replied that he had never had the slightest doubt of it. Every picture, whether a landscape or figure picture, had to be decorative in line; if not, it had no *raison d'être* as a picture. But then, surely, there was a second sense in which the word "decorative" was used—that of the painting or piece of sculpture which was in some way subordinate to the architectural lines, and which gave up a little of its own individuality. There was a remarkable passage in the Life of Burne-Jones in which some one, in reference to his picture of the Three Queens weeping over Arthur, wanted to know why he did not give them a little more individual character. The faces were all the same. And he said, "Well, if I had made them individual characters, what would they have been? They would have been Margaretta and Agnes and Dolores deeply affected by a recent domestic bereavement." Burne-Jones wanted to keep them above that, on a perfectly ideal plane. It might be said that Burne-Jones carried that a little too far; but that was an illustration of the fact that when they had to use art, simply regarded as a decoration for architecture, it had to give up some little of its individual life. Coming from that he should like to remark upon what Sir William Richmond said: that it was such an important element in decorative painting that it should be executed in the midst of its surroundings. It was a very remarkable thing that the French, who had done more decorative painting than any other nation, had lately given that up; they had found it much easier to paint an immense picture in the studio and then paste the canvas on the walls afterwards. He could not help thinking, in going through the French *salons* and seeing some of these enormous and rather coarse pictures, how much they had lost through being painted away from the site; that they were not in harmony with it; they were so self-assertive, as one might say. When they came to consider the question what decorative art meant, and how far landscape could really be decorative, it appeared to him that landscape essentially meant distance. It meant successive phases of distance. Professor Pite anticipated him in saying this, but he quite agreed with his remark; everything that people called decorative landscape (he had seen a great many of them in the French Exhibitions) came down to this, that they were quiet, rather flat landscapes, with not a very great effect of distance and no very great disturbance in the atmosphere. He thought decorative landscape of that kind could have a very fine effect combined with architecture, but he did not think it touched the highest point of landscape art in itself. In fact, surely the easel picture had a claim to be regarded as a separate thing. One might paint a landscape which was a little flat and rather subordinate in order to form part of a decorative scheme; and then one had an easel picture landscape, like most of Turner's, which was put in a frame so as to be divided from other things and so looked into as an individual work of itself apart from its surroundings. Both sculpture and painting had a right to that individual life. In sculpture, again, look at the front of Wells Cathedral. The lower sculptures, those straight up-and-down figures in the niches, were purely decorative sculpture; they had very little expression; they seemed to be part of the architecture. When they came to the Resurrection series at the top there was far more movement and vigour; but that was all half-size; and he was not certain that it was not partly an instinctive feeling on the part of the architect that life-size figures would have destroyed the repose of the building. Mercié's fine group called "Gloria Victis," in one of the courtyards of the Hôtel de Ville in Paris, was a magnificent piece of sculpture which had its own story, its own action, and its own line. It was far too vigorous to be associated directly with the building; it was surrounded by an architectural court; and each of the two added to the effect of the other. But he remembered that as an instance of the power of sculpture to stand alone, and the fact that it really must stand alone if it was to be treated with all the vigour and lifelike expression of which it was capable. One word about ceiling paintings, which had been referred to. Wherever a figure was used in a ceiling it seemed to him essential that it should, as one might say, "float." The only ceiling painting, he believed, that Puvis de Chavannes ever painted showed two rows of figures with their feet at the sides and their heads towards the middle, the effect of which was that the observer did not know which way he was standing. He would instance as the right sort of thing the ceilings that used to be painted by the late M. Marioton, which everyone who went to the French *salons* annually must have noticed. They were not always what one quite liked in colour; but they had that floating effect, not the prosaic composition of figures standing upon the ground; they had the lightness of effect which seemed to be required in a ceiling. The conclusion he wished particularly to emphasise was that there were really two kinds of art—decorative art and individual art. Nobody was more convinced of the importance of regarding decorative art as the ally of architecture than he was. They had far too little of it in England; the Government gave far too little opportunity and encouragement to it; but he would only urge that individual sculpture and easel pictures stood upon their own ground, and were not to be scoffed at because they were not in the same sense decorative art.

Mr. J. D. CRACE [*H.A.*] said he had been delighted to hear that evening so experienced an artist as Sir William Richmond, who had had to confront enormous difficulties, and who, having learnt by those difficulties, brought them the fruit of his endeavour and of his experience. He believed it to be only those who had once plunged into the difficult arena of decorative painting who would ever be able to teach very much to architects in the way of what decorative painting should be. It appeared to him that they ought to begin by considering that decorative painting ought really to be painting which decorated in the sense of adorning the building; and that the building must from the beginning be the one thing to study. The subject of the picture was of course important in itself; but, regarded from the decorative point of view, it did not matter one bit whether the subject was a battle or whether it was a picture of saints; the point being that it should occupy both in colour and form the space that it adorned in such a way as really to improve the building. That appeared to him to have been largely lost sight of in the discussions of decorative paintings which he had heard before in that room. As regards the use of landscape in decoration, it was not an accident, nor was it ill-will, that kept landscape from being largely used decoratively. One might point to the fact that landscape was largely used even in quite early examples of tapestry. Why was that? Why should it be used in tapestry and not in wall painting? For the very excellent reason that tapestry was not structural, and therefore the eye did not expect that support. But the only positions in which landscape could be legitimately used as decorative painting were those positions which were absolutely independent of structure. They might put a landscape in an arched recess where they felt satisfied that the arched form was really carrying the building; but to put a landscape along a wall, which obviously carried a structure, was at once to weaken the effect of their building. In Sir William Richmond's admirable remarks upon mosaics, with which, he supposed, most of them very heartily agreed, there was one point which he felt sure Sir William agreed with, though he had not mentioned it—that is, that whilst undoubtedly the buildings must be, or ought from the beginning to be, built with a view to mosaic, the angles should all be rounded. In all the old buildings in which mosaic was seen to advantage there were no sharp angles in the surfaces which were covered with mosaic. That was one point which seemed to him a little important in regard to mosaics.* As regards the wax painting referred to, it should be remembered that, as with fresco, so with wax painting, where the atmosphere was very impure, wax painting had its drawbacks, because it was impossible to get the accumulated dirt and smoke off the wax painting; however hardened it might appear, it would always retain some of the dirt, and it was almost impossible to cleanse it. There was, too, another thing which ought to be borne in mind in the use of those media, of which wax painting was an instance, in which spirits of turpentine were largely employed, or more strictly oil of turpentine—namely, that all essential oils darken. That was really the cause of varnishes darkening, partly the gum, but also that the oil itself would darken. One had only to observe the behaviour of a piece of white paper dipped in turpentine, and put away for a few years, to see that that paper would have become as dark as brown paper. What happened with the paper was happening with the painting: from the day it was painted it went on darkening; and, although of course it was a comparatively slow process, the painting which was executed with a free amount of turpentine would never retain the beauty and brilliancy of the fresco where fresco could be employed.

Mr. E. W. HUDSON [*A.*] said he was sure they should all be delighted to see in practice Mr. East's theory of landscape painting applied to mural surfaces in order to form a judgment. As a matter of fact Mr. East had put his theory into practice in a very unique stained-glass window in one of the churches in North-west London.* He was sure that, although in their youth they might have been impressed with figures under canopies, and in their more advanced days with William Morris's stained glass, it was really a pleasure to look at this example, unique to his mind and to his experience, of landscape, conventionally treated, embodied in a coloured window in a Decorated Gothic church of modern days. If they would visit that church and watch—as he had done—the setting sun coming through that window, they would, he thought, be fascinated with the colour scheme. If they were, however, very much impressed with conventional glass, and visited the church upon some very dark wintry day, perhaps their old conviction might not be so easily upset.

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* Sir William Richmond spoke of the desirability of wide joints between the tesseræ of mosaic. Their advantage is not limited to the softening of tone which they afford, but is greatest in their quality of expressing surface, and therefore contour; in addition to which they assist in moderating the tendency of gold grounds to "silhouette" the coloured forms, to the loss of their colour. The wide joints help to keep gold and colour in the same plane.
J. D. C.

The PRESIDENT said that a short time ago he saw in one of the papers a paragraph headed "A new use for walls and solid structure for the purpose of decorative treatment." He thought at once that this must have been written by one of his friends the painters, but he discovered that it was written by the engineer who was describing the new Ritz Hotel, where he apologised for the use of walls as being necessary to keep out the weather, and as some advantage for the internal decoration of the building. As architects they hoped they might long make use of their walls for constructive purposes. But it might be well for them perhaps to take the hint, and see that their walls were suitable, and provide places also for the painter. They had learnt somewhat of the use of sculpture in giving expression and meaning to their buildings, to the purpose they were to serve, and to any historical interest in connection with them; so they wanted to learn how the painters also could help them by their decorative work. But the great point they had learnt that evening was, it was essential from the very inception that the architect, the sculptor, and painter should all work together, or if they could be united in one person, so much the better. It was essential that sculpture and painting should form an integral part of the building, so that it should not be considered complete until these were supplied and had their place. It was quite true that architecture had something to say; but it could say it so much more strongly, so much more eloquently, if it said it by the aid of sculpture and painting. With regard to the form of decoration, he felt that there ought to be a place for each of the different methods of which they had heard that evening; but one thing they had learnt was that there should be no atmospheric effects admitted on the constructive parts of the building. All parts, piers, arches, and chimney breasts, and places which were absolutely intended to be solid and do actual work, should be treated with flat decoration, something that had no perspective in it. But he saw no reason why under large arches or panels a greater freedom should not be allowed and perspective introduced. In some cases they knew how valuable and important that would be. In the *Stanza* of Raphael's in the Vatican, with those two wonderful pictures of the "School of Athens" and the "Dispute of the Sacrament" as it was called, they had in the case of the former the architectural perspective carried on into the panel with a vast distance, so that it looked like an immense addition to the room: it made a splendid background for the figures, which were thoroughly in scale with the building. And so on the opposite side, in the "Dispute of the Sacrament," they had a delightful piece of perspective: the clouds above curved to meet the arch above that, and also a bit of landscape in the distance; but the figures, of course, were the important groups, arranged in perspective, so that the whole effect was to give immense size to this otherwise rather small room. The impression made upon him for some time was that it was an immense room, but he found it was quite a small room. The effect of these two immense panels gave such distance and such a delightful air of freedom that it seemed to him a very excellent example of that method of decoration. The treatment of ceilings had always been a puzzle to him, and he did not propose at that late hour to say anything about it. It was a difficult problem that architects had to deal with, decorating ceilings. As for the school which had been advocated—the school of decorative art—Professor Pite had said they were doing admirable work at South Kensington, and he hoped if it was possible at the Royal Academy there might be an improvement by allowing the students to mix much more freely than they had done, and to have subjects set to them which they might carry out together—subjects in which the architect, the sculptor, and the painter could work together. They would then gain experience by the limitations of their respective arts, and not only follow them out, but work together through their lives. There was no doubt that both painting and sculpture in their respective places had a special message to deliver, if one might so speak, quite apart from architecture; but they would find that architecture could aid them also in their respective work; that to the sculptor the architect could supply a setting for his work, and to the painter a frame for his subject and assist him by giving him effective light and proper position, and enabling him to illustrate with colour some purpose distinct from the building in which it was placed.

Sir WILLIAM RICHMOND, R.A., thanked the Meeting for the kind reception they had accorded his Paper, and called their attention to the photographs hung round the room that he had sent down for the audience to look at. An inspection of those, he said, would be infinitely more valuable than anything he could say further.

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* New College Chapel, Avenue Road.

Mr. ALFRED EAST, A.R.A., said he was very much obliged to the Meeting for their kind reception of a subject which he believed had not been thought of sufficiently, and one that so many people had troubled over. Of course the question of perspective had been introduced by all decorators in the past, by Giotto and Cimabue, and right down through all the ages; and yet it was objected to in landscape. There were, in his view, two aspects of landscape. One was the easel picture; the other was the decorative treatment of landscape—pure, severe, and conventional—and it was for the latter that he pleaded that evening. It could be treated conventionally, symbolically, if they liked—as conventionally as that of the figure, with this advantage, that it did not distract them by the assertion of an incident or an anecdote. They all felt when they went to a new country and visited a city that the first thing that struck them was its architecture; they formed their opinion on its sculpture, on its civilisation, and its architecture; it formed a means by which they felt that the painter and sculptor and architect would all like to be united in one more effort for the praise and glory of the art. They should not recognise the question of limitations of their art in any way. They should try to work together in the accomplishment of their great art.

Mr. SOLOMON J. SOLOMON, A.R.A., referring to Professor Pite's remarks, said that he had no idea, and was pleased to see, that the education of the art student at South Kensington was being carried out on the lines he had tried to express as the necessity for the art student; but he would add, as he had said already in his Paper, that the school for which he was pleading was not to be established with the object of competing with existing schools, but of supplementing them. The art student when he finished his course of training did not quite know what to do next. A year of decorative art, he thought, would give him that necessary direction. It seemed to him that there was a certain amount of confusion as to what was meant by decorative art. He bowed to the superior knowledge of Professor Pite on a subject of this kind—that certain forms of decoration must necessarily belong absolutely to the wall. But then, he asked, what position did Paul Veronese hold—and Raphael? After all, they must have some niche; were they going to suggest that they were entirely wrong? When he spoke of decorative art he had more particularly in his mind the school of Veronese; and we might hope that under such influences a body of men would one day be able to decorate adequately those spaces that might be left in buildings to illustrate their nature and character.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS 1834
INCORP. 1837 1887

9, Conduit Street, London, W., *25th Mar.* 1905.

CHRONICLE.

Prizes and Studentships 1905–1906.

The pamphlet giving full particulars of the Prizes and Studentships offered by the Institute for the year 1905–1906 is issued to members with the present number of the Journal, and is on sale at the Institute, price *3d.* The prizes and subjects are briefly as follows:—

The Essay Medal and Twenty-Five Guineas, open to British subjects under the age of forty.—*Subject:* "The Biography of a British Architect (deceased) practising in the Nineteenth Century."

The Measured Drawings Medal and Ten Guineas, open to British subjects under the age of thirty.—Awarded for the best set of measured drawings of any important building—Classical or Mediæval—in the United Kingdom or abroad.

The Soane Medallion and One Hundred Pounds, open to British subjects under the age of thirty.—*Subject:* Realisation of the ideal mansion described in Bacon's Essay "Of Building," beginning at the words "First then, I say, you cannot have perfect a palace, except you have two several sides."

The Pugin Studentship: Silver Medal and Forty Pounds, open to members of the architectural profession (of all countries) between the ages of eighteen and twenty-five.—Founded to promote the study of the Mediæval Architecture of Great Britain and Ireland, and awarded for the best selection of drawings and testimonials.

The Godwin Bursary: Silver Medal and Sixty-Five Pounds, open to members of the architectural profession without limitation of age.—Founded to promote the study of works of Modern Architecture abroad, and awarded for the best selection of practical working drawings, or other evidence of special practical knowledge, and testimonials.

The Owen Jones Studentship: Certificate and One Hundred Pounds, open to members of the architectural profession under the age of thirty-five.—Founded to encourage the study of Architecture, more particularly in respect to

Ornament and Coloured Decoration. Competitors must submit testimonials, with drawings exhibiting their acquaintance with colour decoration and with the leading subjects treated of in Owen Jones's *Grammar of Ornament.*

THE TITE PRIZE: CERTIFICATE AND THIRTY POUNDS, open to members of the architectural profession under the age of thirty.—*Subject:* A Design, according to the Principles of Palladio, Vignola, Wren, or Chambers, for an Open-air Swimming Bath with an Arcaded or Colonnaded Enclosure.

THE GRISSELL GOLD MEDAL AND TEN GUINEAS, open to British subjects who have not been in practice more than ten years.—Founded to encourage the study of Construction. *Subject:* Design for a Stone Skew Bridge.

THE ARTHUR CATES PRIZE: A SUM OF FORTY GUINEAS, open to British Subjects who have passed the R.I.B.A. Final Examination at one sitting during 1904 and 1905.—Awarded for the best set of testimonies of study submitted for the Final Examination, and for studies of Classical or Renaissance, and of Mediæval Architecture.

THE ASHPITEL PRIZE: BOOKS VALUE TEN POUNDS.—Awarded to the student who distinguishes himself most highly in the Institute Final Examinations 1905.

Architects' Benevolent Society.

Sir Aston Webb, R.A., presided at the Annual General Meeting held at the Royal Institute on the 9th March. Among those present were Mr. T. E. Collcutt, Mr. George Scamell, Mr. G. T. Hine, Mr. H. H. Collins, Mr. Wm. Woodward, Mr. C. H. Brodie, Mr. F. W. Hunt, Mr. Wm. Grellier, Mr. T. M. Rickman, Mr. Reginald Roumieu, Mr. Edwin T. Hall, Mr. Ambrose Poynter, Mr. Henry Lovegrove, Mr. Percivall Currey, and Mr. W. Hilton Nash.

The Annual Report of the Council, as follows, was taken as read:—

The Council of the Architects' Benevolent Society in submitting their Fifty-fifth Annual Report to members have to record a year in which possibly the existence of the Society was never more amply justified. Whatever may be the cause, the fact remains that more numerous applications for grants have been received than usual, and many of these applications have called for special sympathy and help. The Council fortunately have been able to meet the unusual demands made upon them, and have expended £950. 19*s.* in the payment of pensions and in the relief of deserving cases—the largest sum ever distributed by the Society in one year. It is interesting to note, as indicating the steady progress of the work, that the sum granted to applicants ten years ago (1894) was £589. At the end of last year, however, the Income Account showed a deficit of £47. 9*s.* 1*d.* The Council hope that, as on a previous occasion when the income had been exceeded, a generous donor may come forward to make good the arrears.

During the year £539. 5*s.* was received in subscriptions and £398. 10*s.* 3*d.* in dividends from invested capital. The sum of £45. 14*s.* 2*d.* was also received from the Inland Revenue in response to a claim for the rebate of two years' Income-tax.

With regard to the Capital Account, the Council have to report a falling-off in the donations, the sum of £37. 16*s.* 10*d.* only having been received—the smallest for many years. In addition to this sum, there was, however, a balance brought forward from the preceding year of £212. 11*s.* 3*d.*, and legacies were received from the executors of the late Mr. H. Saxon Snell of £100, and of Mr. Chester Foulsham of £5. 5*s.* The Council were, therefore, enabled to add to the investments by the purchase of £200 New Zealand 3 per cent. Inscribed Stock at a cost of £174. 11*s.* The sum total of the Society's invested capital now amounts to £13,771. 3*s.* 2*d.* Notwithstanding the depreciation in recent years in the value of Consols, of which the Society holds £4,706, the total investments retain their cost value at current market prices. There is a further sum of £181. 6*s.* 3*d.* standing to the credit of the Capital Account in the hands of the bankers. Members are reminded that all donations are placed to the credit of this account, and that it has been the aim of successive Councils for many years to increase the stability of the Society by adding to the amount of its investments. It is much to be regretted, therefore, that the amount received in donations last year should be so much below the average.

As the majority of cases relieved by the Society come from the provinces, the Council note with much satisfaction that an appeal made in recent years to the Societies allied to the Royal Institute of British Architects has met with a sympathetic response. Last year the Leeds and Yorkshire Architectural Society (through their President, Mr. Bertram Bulmer) gave a donation of £10. 10*s.* and added their name to the list of annual subscribers. Towards the close of the year Mr. William Glover, a past President and liberal benefactor of the Northern Architectural Association, promised, through the honorary secretary of that association (Mr. A. B. Plummer), a donation of £300, with an expression of the wish that the Northern Association might have the privilege of supporting the claims of applicants coming from the counties of Northumberland and Durham. The thanks of the Society are due to Mr. William Glover for his handsome gift.

Sixty-six applicants have been assisted during the year, and ten pensioners have been paid their annual grants. One pensioner died during the year.

The Red Book was issued as usual in June, not only to members of the Society, but to every member of the Royal Institute of British Architects. The expense incurred, however, was hardly justified by the result, the number of annual subscribers being only increased by seven. In view of the comparatively small number of architects in active practice who contribute to the Society, the Council make an earnest appeal for more liberal support.

Six meetings of the Council have been held during the year, the average attendance of members being eight.

The Council have to record with deep regret the death of Mr. Arthur Green, Mr. Thomas Blashill, and Mr. Henry A. Hunt, all of whom took an active interest in the work of the Society. Mr. Hunt was one of the Society's auditors, and Mr. Green its largest annual subscriber.

Owing to the death of Mr. Hunt it was necessary to nominate a second auditor. Mr. Henry Lovegrove kindly undertook to fill the vacancy, and with Mr. John T. Christopher audited the statement of accounts.

The following gentlemen, being the five senior members, retire by rotation from the Council:— Mr. J. J. Burnet, Mr. J. H. Christian, Mr. R. St. A. Roumieu, Mr. G. Scamell, and Mr. E. A. Gruning. To fill the vacancies caused by these retirements the Council have the pleasure to nominate Colonel Robert W. Edis, C.B., Mr. H. L. Florence, Mr. G. Bertram Bulmer, Mr. F. W. Hunt, and Mr. Walter L. Spiers.

The cordial thanks of the Society are due to the Royal Institute of British Architects for office accommodation and for the use of rooms in which to hold their meetings, and to the Secretary (Mr. W. J. Locke) and his staff for their always helpful courtesy in any matter connected with the work of the Society.

The Chairman, in moving the adoption of the Report and balance-sheet, said that, as in the past, there had been before them many sad cases during the last year, and all members of the Council knew how urgent were the needs of the Society to meet such cases. It was the duty year by year of every occupant of that Chair to tell the same sad tale, and to ask for help—a tale of sorrow and sadness which through ill-health or accident might at any time apply to those who worked with and existed by the use of their brains and hands as architects did. One of the most useful things the Institute did was to give the Society the help it did—the use of its rooms, and in other ways. The officers of the Society carried out their work with the greatest possible care, and he had never heard that those who applied for help, who were often in a nervous and sensitive condition, and who were particularly liable to feel any slight or hurt, had ever received anything but the most sympathetic treatment at the hands of the Society. He must again mention the small amount of subscriptions received in comparison with the number of architects, and they must really try and increase the number of subscribers in some way. He happened to be connected with the Artists' General Benevolent Institution—which included all artists—whose income was about £4,000, and the subscriptions to the Architects' Benevolent Society compared very unfavourably with that. Only 5 or 6 per cent. of the members of the Royal Institute of British Architects subscribed to the funds, which seemed incredible. Architects, to take the lowest ground, might regard the subscription to the funds of the Society as in the nature of an insurance, bearing in mind what the risks of life were. The Society did not go outside the profession for help, as they desired to do what they could for themselves amongst themselves. He was glad to see that Mr. William Glover had helped the Society in the way he had, and that he had done it in his lifetime, while he could receive their thanks and gratitude, and he hoped others might follow his example. Mr. T. E. Collcutt had given a donation of £25, and he (the speaker) would be glad to follow his lead and subscribe the same amount.

The Report and balance-sheet having been adopted, promises of £25 each from Mr. E. T. Hall and Mr. Wm. Woodward were made.

Obituary.

Charles Bennett Arding, *Associate*, elected 1857.

Professor Ludwig Peter Fenger, of Copenhagen, *Hon. Corresponding Member*, elected 1886.

Ellis Herbert Pritchett, of Swindon, Wilts, *Fellow*, elected 1901.

Samuel Joseph Nicholl (admitted *Student R.I.B.A.* 1843, *Institute Essay Medallist* 1845), *Associate*, elected 1847.

Appointments.

Mr. Edwin T. Hall [*F.*] has been elected Deputy-Chairman of the Board of Estates Governors of Dulwich College. Mr. Hall was also recently appointed a governor of James Allen's Girls' School, one of the group of schools administered under the Dulwich College scheme.

At a recent meeting of the Masters of the Bench Mr. John W. Simpson [*F.*] was appointed Architect to the Honourable Society of Lincoln's Inn.

The A.A. Building Fund.

A Students' "Smoker," organised by some members of the Architectural Association, is to take place at the Café Monico, Piccadilly Circus, on Tuesday 28th inst. All profits are to go to the Association Building Fund. Tickets are 2*s.* 6*d.* each; five for 10*s.*

REVIEWS.

LEADLESS GLAZE.

Leadless Decorative Tiles, Faïence, and Mosaic. By W. J. Furnival. La. 8vo. 1904. [W. J. Furnival, Stone, Staffordshire.]

Under the title of "Leadless Decorative Tiles, Faïence, and Mosaic" Mr. William J. Furnival has written a book of great bulk. Indeed, the title and the size taken together are misleading; for the author is by no means occupied throughout with the elimination of lead from glazes. Some two hundred of his pages are given up to a survey of the tile industry from the fiftieth century B.C. to the present time. Other pages (perhaps a third of the book) are devoted to a technical explanation of the processes of manufacture, and yet others to a not wholly necessary or satisfactory essay on the principles of design in tile-work. I have no quarrel with the inclusion of history and science in the volume; it is, in fact, well for the cause in which Mr. Furnival is interested that his book should show knowledge, not only of the particular field covered by the first word of his title, but also of past records and present processes. I only wonder that in wording this title it was not framed to express more clearly the scope of the inquiry.

It is in the eleventh chapter that Mr. Furnival really comes to grips with his subject, and here he is at his best. Much of the literature which deals with the subject of lead glazes, from the philanthropic point of view, is perhaps naturally more full of energy than of technical knowledge; but here in Mr. Furnival's work we have a handling of the subject which is perfectly dispassionate, and, in point of expert knowledge, thorough and practical. The writer does not allow enthusiasm to run away with him. He is not prepared to say that a manufacturer who has won his reputation by years of experience in the use of lead can expect success in leadless processes without giving to them the care that is necessary in every department of an art which, if it is one of the most ancient, is also one of the most treacherous in its results. He points out that the potter in all his operations is hedged in by a hundred laws and a hundred chances. The forces of chemistry, physics, and mechanics stand about him on every side, ready with a countless combination of minute circumstances to make or mar his work.

These odds are against him or for him, whether he works on his old lines or on new. He has, in fact, to baffle the enmity or seek the friendship of chance at every turn. And, again, he has human nature to contend with—that poor, obstinate machine for whose very welfare the battle against lead is fought—and the manufacturer who, for the interest of the experiment or for the health of his workers, sets out to do his glazing with other than poisonous means finds, no doubt, like other innovators, that the men and women who should benefit by his changes are themselves the chief obstacles to his enterprise.

Six years ago, when Mr. Furnival produced his former book, *Researches on Leadless Glaze*, the total number of reported cases of lead-poisoning among women in the pottery trades reached an annual average of no less than 230. Happily this figure has been reduced in the interval to 47. As the author points out, this happy result should not be the cause of a hasty conclusion that the agitation against lead may now be discontinued; rather should we realise that the public discussion of the evil and the resultant measures have really been operative for good to a degree which augurs excellently for its eventual suppression. Legislative coercion, as Mr. Furnival points out, excites opposition, and the ultimate success of legal restrictions must depend on the tact and adroitness with which they are applied. "A more effectual course," here I quote verbatim—"a more effectual course to pursue in endeavouring to bring about the desired change is, perhaps, to discover and publish less injurious glazes and enamels than those in general use, and to let competition, common sense, and public opinion do the rest."

Obviously it is only under exceptional conditions that a work such as this book by Mr. Furnival can be produced. Men who are engaged commercially in the production of glazed ware are unwilling for obvious reasons—reasons which we respect as sound if selfish—to lay their workshop recipes before general readers in print. On the other hand, very few private workers have sufficient practical knowledge to be able to produce directions of real value. The book must therefore be welcomed as standing alone in its own particular mission; and if for a moment it seems regrettable that the subject of leadless glaze is outweighed by other and not wholly relevant matter, it must at the same time be admitted that the historical summary of the subject is not only very carefully carried through, but is also illustrated by a great number of well-chosen examples, some of which are admirably printed in colour.

Perhaps Mr. Furnival is too willing to quote. His own utterances are preferable to many of those which he borrows, and he need not, I think, have served up without disapproval the dictum of a pseudonymous contributor to the *Architect*, who said that "architecture with colour is or may be a fine art; without it only a science, a practical art, a business, or a profession." From this complicated falsehood I turn with relief to the author's own statement—simple and true—that "colour is a human need."

Paul Waterhouse.

ALLIED SOCIETIES.

ABERDEEN SOCIETY OF ARCHITECTS.

Registration.

The Aberdeen Society and friends dined together on the 24th February at the Imperial Hotel. The President, Mr. Arthur Clyne [*F.*], was in the chair, and in giving the toasts called on the assembly to drink the first toast to the health of the Patron of the Royal Institute of British Architects, the King, which was loyally honoured. In the unavoidable absence of Mr. R. G. Wilson, Vice-President, the Hon. Secretary read some interesting notes from him, and afterwards proposed the Royal Institute of British Architects. In replying Mr. Horatio K. Bromhead [*F.*], Past President of the Glasgow Institute of Architects, said that the Royal Institute would be pleased to hear that their toast had been received with such enthusiasm. When he joined the R.I.B.A. in 1872 he had the highest esteem for that body, and his respect for it had grown more and more since. It was a living and growing power that was not only doing an enormous amount of good, but was enlarging its aims and contemplating still further usefulness. Architects of the present day were united on the subject of education and other matters, but were drawn apart from each other by competitions for almost all important works. Architects of the past had not the facilities of the present day in the way of schools of architecture; but they had the gift of unbounded faith and love which urged them to the unwearied pursuit of architectural knowledge. The R.I.B.A. had inherited their high qualities, and from its early days had been increasing its inducements and examinations; but it was necessarily handicapped by the reaction that limited the number of candidates in proportion to the difficulties of the examinations. Of late the education question seemed to be dividing itself into two sections. The proposed Board of Architectural Education was perhaps inclined to object to legal compulsion, or to some of the difficulties that were said to accompany legal registration, and wished to soar into higher regions by setting up a high-class architectural school. That was a beautiful ideal. But perhaps the great majority wanted something more practical, something that would reach down to the bottom, to where the untrained men were grasping at work, and, if they had knowledge enough to bungle through it, offering to do it at a remuneration that rendered good work impossible. That was where legal registration came in, not at the task of supplying education to those who were anxious to get it, but at a compulsory examination to show the possession of education and knowledge and capacity before being allowed to enter a legally recognised profession. In his opinion legal registration must necessarily have advantages. It would set up an authority that would have a powerful influence on competitions, for it would be able to influence every member. Architectural societies could only influence the better part of the profession. Legal registration would chiefly influence those who needed to be stiffened up, even against their own desire. The influence of registration would extend beyond architects into the region of those who had to do with architectural work.

The Chairman, replying to the toast of the Aberdeen Society of Architects, said that though the Aberdeen Society was not a large body, it was strongly bound together. Happily it contained, with very few exceptions, all the architects who were qualified for membership and practising at the present time in Aberdeen. He also thought they might claim that in a quiet and unassuming way they were accomplishing all the objects for which the Society was established, with a gratifying degree of success. It had been hinted to him that the Society was rather too modest, and perhaps if a little more publicity were given to its proceedings there would be a beneficial result. In the interests of the fine arts generally, he would advocate a closer union with the sister arts of painting and sculpture; but, when such association was applied to buildings, he held that architecture must be the dominant partner. On the part of municipal bodies the practice of placing in the hands of their own officials important architectural work of a public character had lately come into prominent notice. The R.I.B.A. as well as the general body of architects naturally regarded this with disfavour, as tending to lower the standard of the art and science of architecture.

CARDIFF, SOUTH WALES, AND MONMOUTHSHIRE ARCHITECTS' SOCIETY.

Annual Dinner.

The Annual Dinner of this Society was held at the Royal Hotel, Cardiff, on Tuesday, the 14th March. The President, Mr. Cholton James [*F.*], presided, and among the numerous company present, besides local guests, were the President R.I.B.A., four members of Council and the Secretary R.I.B.A., and several metropolitan members.

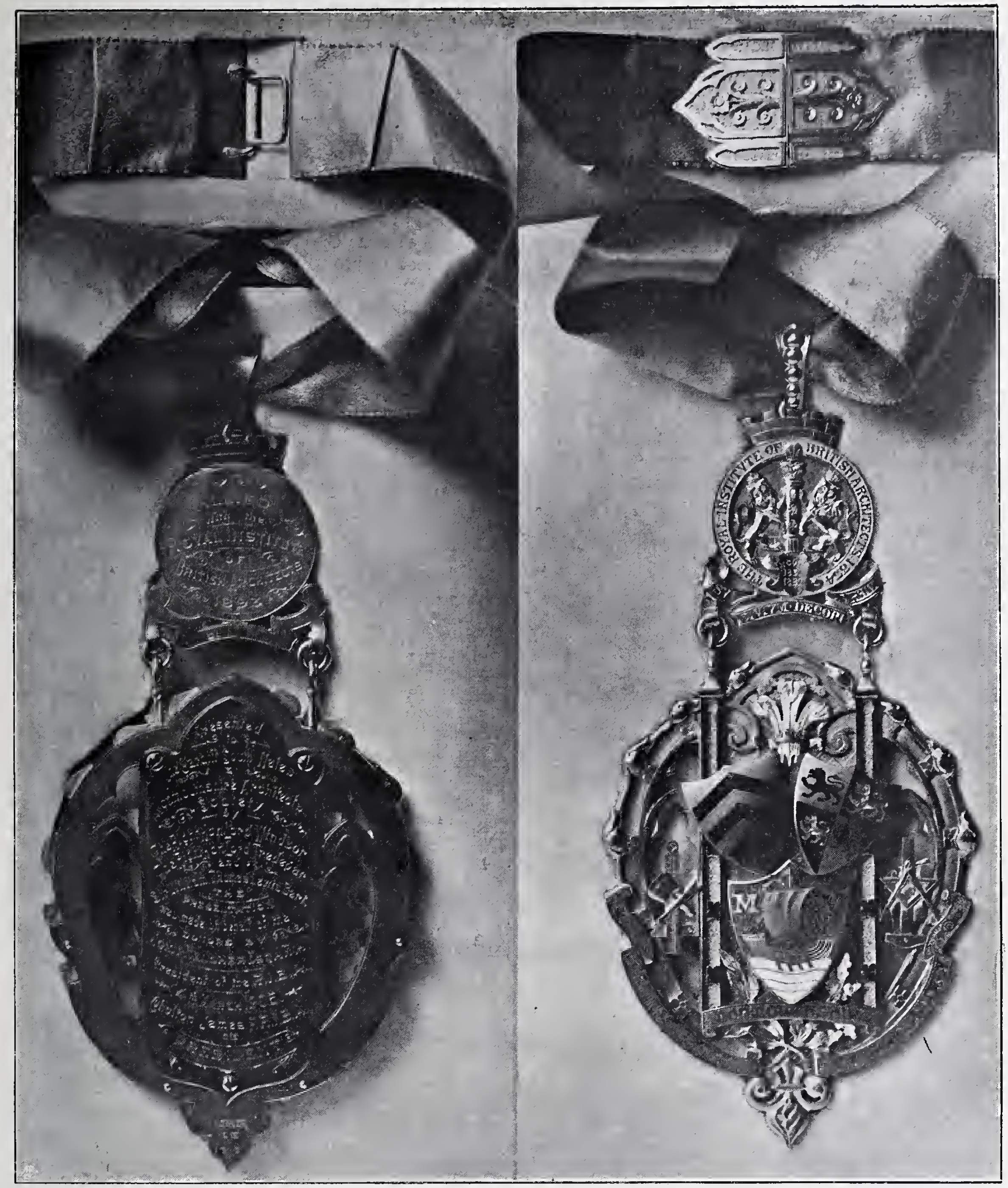
Mr. John Sankey, in responding to the toast of "Our Legislators," said that more attention should be paid by their legislators to the outside of buildings; at present all the by-laws appeared to relate to that part of them which was inside and underground. He would like to see the way made easy for those gentlemen who had no time or inclination to get into Parliament! He thought that the President of the Institute (Mr. Belcher) should be able to get into Parliament in such a manner. If they only had more practical men amongst their legislators the laws would be better than they were at present.

Mr. Edwin Seward [*F.*], proposing "The Royal

Institute of British Architects," said that the watchword of efficiency had belonged to the Institute for many years, especially in regard to those who were to be members of the profession. They in Cardiff were not so closely in touch with the great central body as they would desire to be; but it was a great pleasure to know that there was no subject which touched their interests but that the Institute was at their back—a place that could not be taken by any other organisation for the advantage of those who practised its profession. The Royal Institute of British Architects, he was glad to say, was their parent body. They had had some form of Society in Cardiff for some time, but it was the alliance with the Institute that put them on their feet. With regard to Mr. John Belcher, he felt that Mr. Sankey's comments were of the greatest appropriateness. He had foreshadowed an idea new to them; but they could not help feeling that architecture was a subject which received little or no attention in Parliament. How could it be otherwise when the gentlemen who represented them had to deal with domestic and foreign legislation? Therefore he hailed with much satisfaction what perhaps was only a partially expressed idea, for it had a good deal of "ought to be" in it. The same thing applied to some other professions. Some of them were well represented, but surely one place should be reserved in Parliament for a leading member of their profession. In Mr. Belcher they had one of what he might perhaps term the Parliament of Art—the Royal Academy. In Cardiff they were, he believed, only standing on the threshold of its architectural history. In purchasing Cathays Park, with the determination to build thereon splendid public buildings, it had put its hand to a noble task.

Mr. John Belcher, A.R.A., *President R.I.B.A.*, thanked the company for the enthusiasm with which they had received the toast. It was interesting to him, he said, to find that the proposer of the toast was one whose family had been connected with the Institute from its earliest days. He (the speaker) was himself no longer young, for he had discovered that it was he who signed Mr. Seward's certificate, and that gentleman was now one of the oldest members of the Institute in Cardiff. He was very pleased to be with them that evening, and to thank the proposer for his kindly remarks. He had no desire to enter Parliament, but he quite agreed with all that had been said with regard to Cardiff; and it was one of his privileges to be able to see what was going on in the different localities he visited. The speaker threw out the suggestion that it might be better if in the case of inviting officials of the Institute to the Allied Societies the invitations were to come in some sort of order, so that they did not have to visit only the senior Societies regularly. The Institute had responsibilities to all, and the more they kept in touch with the provincial Societies the better. On such an occasion as the present they got a better knowledge of each other, and it strengthened the fellowship between them. There were special interests in regard to the Allied Societies, arising out of local conditions and circumstances; but that which was the primary object of them all was that the standard of their members might be raised and their efficiency increased, and that the art of architecture might be advanced. It was to be his honour and privilege that evening to present a badge of office to be worn by their President. Might he mention a conversation which took place between the representatives of two newly formed and rival corporations in London? One gentleman spoke of the great advantages they had in the shape of a beautiful town hall, &c. "Now," he said, "we have given a collar and chain to our new Mayor." The other contemptuously remarked: "Oh, but we let our old man go free!" He mentioned that, because it went to the root of the matter in presenting a badge. The President would be reminded that he was no longer free, but as the badge rested upon his breast the interests of the Cardiff, South Wales, and Monmouthshire Society would be ever present to him. By that sign he would be known as their representative, and they would be proud to support him as such.

Mr. Cholton James [*F.*] said he desired to thank them one and all for the very fine gathering which had assembled to honour the Society, and at the same time to honour himself. He thanked the Council of the Society for supporting him so well during his year of office; and also their Secretary (Mr. Edgar Down) for the very energetic way he performed his duties—duties which were not easy, and which involved a large expenditure of time and labour. They in South Wales, as in other parts of the provinces, had grievances against public bodies. Certain works for which public bodies were responsible ought to be done by competent architects. Competent architects also should be paid a recognised fee—for there were recognised fees in their profession. These public bodies distinctly stipulated that contractors for their works should pay the wages the unions demanded for the working man. They, however, as architects were asked as a profession to state their terms. Was it consistent? Was it not only fair and just while demanding for the working man his recognised wages that they as architects should receive their recognised fee? Surely the man who worked with his brains was entitled to equal consideration with the man who worked with the pick and shovel. The speaker went on to refer to the badge of office presented that evening. He conceived the idea of such a badge some three or four months ago, when he was told that the King would probably visit Cardiff this year to open the new dock and new Town Hall and Law Courts, and lay the foundation-stone of the College buildings. He (the speaker) thought it would be an opportune occasion for the recog-



PRESIDENTIAL BADGE OF THE CARDIFF, SOUTH WALES, AND MONMOUTHSHIRE ARCHITECTS' SOCIETY

Presented to the Society by the Right Hon. Lord Windsor, the Right Hon. Lord Tredegar, and Sir W. T. Lewis, Bart

(See description, page 340.)

NORTHERN ARCHITECTURAL ASSOCIATION

nition of their Society. He first addressed Lord Tredegar, and was met in the most kindly manner. He then approached Lord Windsor, a past Mayor of their borough, and a lover of their art: from him also he received a very encouraging reply. Lord Bute, whom he next proposed to approach, being on his way to South Africa, he addressed himself instead to Sir W. T. Lewis, who had done so much good work for Cardiff, and met with a favourable response from him. He should wear the badge during the remainder of his term of office with pride, and he trusted that no one who in time to come would have the honour to wear it would disgrace it.*

Mr. E. W. M. Corbett [*F.*] gave "The Local Governing and Educational Bodies," and said that the architects of Cardiff were indebted to the Corporation of Cardiff for the grand scheme for developing Cathays Park. They could already point with the greatest pride to what was being done; what their future would be he could only leave to their imagination. They could not see anything equal to it in any provincial town in the country, if indeed in Europe, unless it was the Champs-Élysées in Paris.

The Mayor of Cardiff, in responding, said he felt that the governing body he had the honour to represent had reason to be deeply indebted to the architects of the town. They had heard that evening from eminent authorities of the splendid monuments of architecture in the town, and he was pleased to say that, coming from such an authority as Mr. Corbett, it must be gratifying to them. They had, he was glad to know, the designer of the Town Hall and Law Courts (Mr. Lanchester) with them. At an early date the College would invite them to participate in a function which would redound to the credit of Cardiff and South Wales for all time. He referred to the laying of the foundation-stone of the new College buildings by H.R.H. the Prince of Wales; and he hoped they would all support the College authorities on that occasion.

Principal Griffiths, referring to the question of architects for their College buildings, asked the architects of South Wales to believe that, however they might disagree with the action of those in authority at the College, it had been their one aim and object to procure the best possible result for Cardiff and South Wales. They might have followed paths distasteful to them, but they wanted to secure the best possible end. The generosity of tone of the architects of Cardiff and South Wales was one for which he could not personally be sufficiently grateful.

The Secretary of the Institute, in responding for the London Visitors, proposed by Mr. George Thomas [*F.*], said that in return for the hospitality received that day London members would give the Cardiff Society a most cordial welcome next year at the Seventh International Congress. He urged on the Allied Societies the necessity of giving the Institute their support on this occasion, as on that would depend in great measure the success of what in foreign countries had always been a brilliant and most important international gathering.

MINUTES. X.

At the Tenth General Meeting (Ordinary) of the Session 1904–5, held Monday, 20th March 1905, at 8 p.m.—Present, Mr. John Belcher, A.R.A., *President*, in the Chair, 45 Fellows (including 14 members of the Council), 51 Associates (including 2 members of the Council), 6 Hon. Associates, and numerous visitors: the Minutes of the Meetings held Monday, 6th March 1905 [p. 312], were taken as read and signed as correct.

The Hon. Secretary announced the decease of the following members:—Charles Bennett Arding, *Associate*, elected 1857; Professor Ludwig Peter Fenger, of Copenhagen, *Hon. Corresponding Member*, elected 1886.

The following Fellows attending for the first time since their election were formally admitted by the President:—Charles Belfield Bone, M.A. Oxon.; Alexander Cunningham Forrester; Arthur George Layton; William Gilmour Wilson.

Papers on Decorative Painting were read by Sir William Richmond, K.C.B., R.A., Alfred East, A.R.A., and Solomon J. Solomon, A.R.A., *Hon. Associates*, and having been discussed, a vote of thanks was passed to the authors by acclamation.

On view in the Meeting-room was a numerous collection of photographs of surviving examples of ancient pictorial mosaics, fresco paintings, and sculptural work in Constantinople, Rome, Venice, Ravenna, Palermo and other Italian cities, kindly lent for the occasion by Sir Wm. Richmond, R.A.

The proceedings closed and the Meeting separated at 10 p.m.

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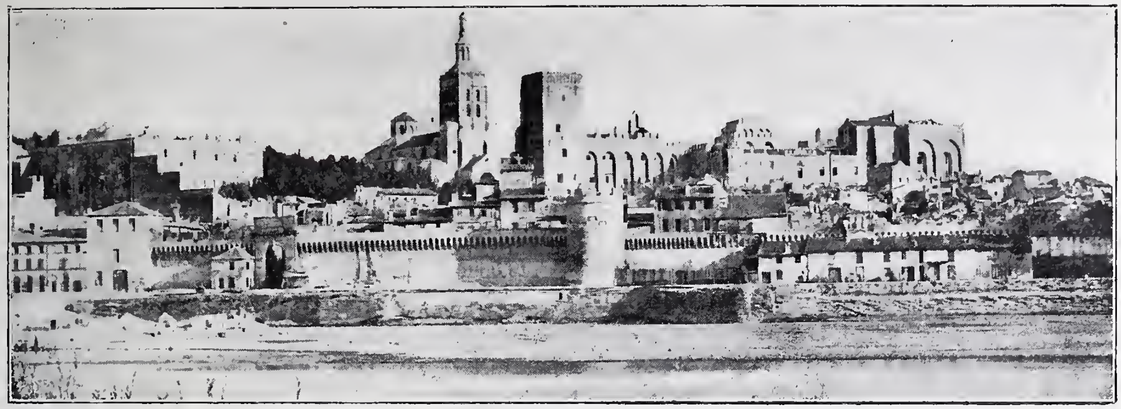
* *Description of the Badge.*—The Badge, which is the generous and joint gift of the Right Hon. Lord Windsor, the Right Hon. Lord Tredegar, and Sir William Thomas Lewis, Bart., to the Cardiff, South Wales, and Monmouthshire Architects' Society, is of solid eighteen-carat gold, of Gothic design, embodying shields in enamels in true heraldic colours, the arms of Cardiff, South Wales, and Monmouthshire, surmounted by the Prince of Wales's feathers in platinum. On either side of the shields are instruments and tools emblematical of the architectural profession, with a scroll-ribbon in enamels at the base bearing the name of the Society, the whole being surrounded by oval-shaped scrolls with inserted patras and edged with carved crochets, and suspended by links to caps of two carved and sunk columns to a miniature seal of the Royal Institute. It is fastened around the neck by royal blue ribbon secured at the back with a gold Gothic clasp. On the back of the Badge is the following inscription, viz.—"Presented to the Cardiff, South Wales, and Monmouthshire Architects' Society by the Right Hon. Lord Windsor, the Right Hon. Lord Tredegar, and Sir William Thomas Lewis, Bart. The presentation was made on behalf of the donors by John Belcher, Esq., A.R.A., President of the R.I.B.A., 14th March 1905; Cholton James, F.R.I.B.A., President." On the back of the miniature seal is inscribed: "Allied with the Royal Institute of British Architects 1893." The Badge is the design of the President, assisted and supplied by Mr. W. H. Maton, jeweller, of Cardiff.



THE PLANNING OF CITIES AND PUBLIC SPACES.

By John W. Simpson [*F.*] and Professor Beresford Pite [*F.*].

Read before the Royal Institute of British Architects, Monday, 3rd April 1905.

I. By John W. Simpson.

IN attempting, as in duty bound, to fulfil the task laid upon me by the Council, and address you on the subject of "The Planning of Cities," let me at the outset disclaim any presumptuous intention. It is so obvious that this prodigious subject cannot be adequately treated in a short Paper that I venture to assume no disappointment on your part if I only touch upon its fringe. Should I succeed in unravelling here and there a few threads, and, by interesting you in the structure of the fabric, induce you to further investigation, rest assured that you will be richly repaid, whether the object of your research be artistic or scientific.

The technical literature dealing with the matter is comparatively small, and, in so far as this country is concerned, may be said to be non-existent. It is to the indefatigable German that we must as usual turn for a reasoned analysis. Herr Stübben, the distinguished city architect of Cologne, in his volume *Der Städtebau* has dealt comprehensively with almost every conceivable point pertaining to city construction, from sites and systems of streets to park seats and advertisement boards. You will find his work in that stupendous compilation *Das Handbuch der Architektur,* and you will not quarrel with the adjective when I mention that Stübben's book, an imperial octavo of 561 closely printed pages with 857 woodcuts and thirteen plates, forms merely the ninth "half volume" of Part IV. Stübben presented a remarkable digest of his book in the form of a report to the International Congress of Engineers at Chicago in 1893, and this has been translated into French by our friend and colleague Bourgmestre Buls of Brussels, to whom I am indebted for a copy.

An even more interesting book, from the artist's standpoint, is that of Camillo Sitte, of Vienna, published in 1889. This work inaugurated a new era in the art of city building: the principles enunciated by its author have been applied on many occasions, and their practical value demonstrated. It has been translated into French by Camille Martin, who has added a complete chapter and augmented both the letterpress and the illustrations. I am glad to see that our Library has recently acquired a copy.

I desire fully to acknowledge these important works both on account of their distinguished merit and because I have plundered them ruthlessly for much of the matter and many of the illustrations which I shall put before you to-night. K. Burgmeister's and Rohault's works, and the numerous publications on particular works in various cities, must not be overlooked; but I am not offering you a bibliography. It may, however, be stated, without fear of contradiction, that while such matters as public health, control and acceleration of traffic, improvement of ground values, restrictive Building Acts, and the like, have been exhaustively treated (and that to the public advantage), the artistic side of city planning has been almost entirely neglected in England, and I do not suppose that our authorities even realise its existence. The laying out of new streets and roads is nowadays looked upon as purely technical engineering.

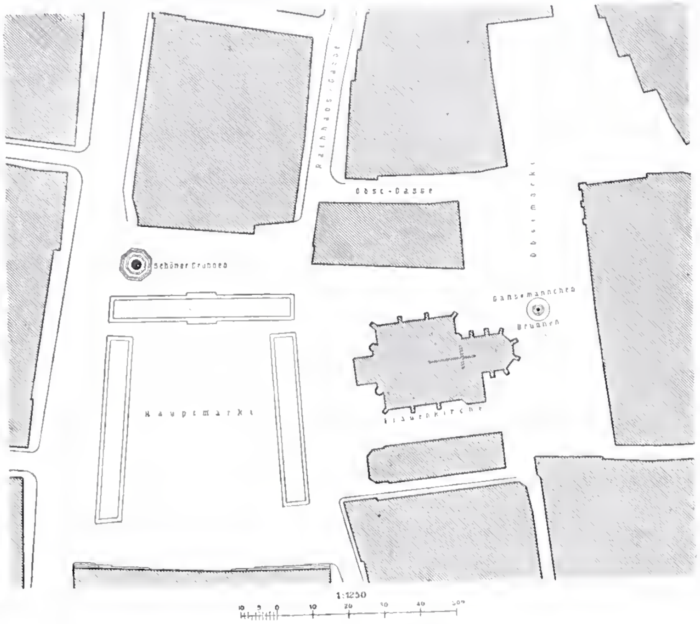


FIG. 1.—NUREMBERG.

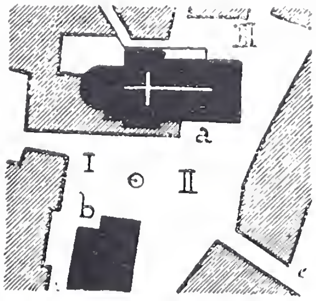


FIG. 3.—PERUGIA. I. Piazza del Viscovato. II. Piazza di S. Lorenzo. III. Piazza del Papa. *a*, Duomo. *b*, Palazzo communale.

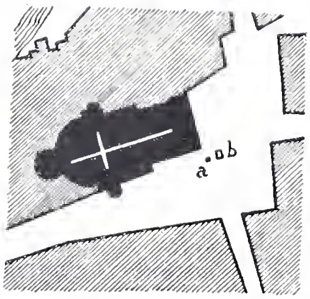


FIG. 4.—PADUA: Piazza del Santo. *a*, Column. *b*, Statue of Gattemala.

It was not thus that the cities were created which are still the wonder and delight of the civilised world.

The point of view of the artist is, therefore, that to which I invite your attention this evening; and in doing so let me affirm our position by pointing out that art is a real and living force, demanding full recognition of all practical considerations which affect it. The finest art, then, is that which most completely and most beautifully solves the conditions of the problems presented to it. The leading canons of composition are common to all the arts, and chief among them is that which insists upon the subordination of parts in order to obtain vigour in the complete work. If your picture, your book, your drama, or your symphony, be throughout of equal force, the result is monotony. So with a city, we must husband our resources if we are to obtain an artistic whole. If we scatter indiscriminately the material which makes for beauty (and for our purpose this material is represented by the public buildings and monuments) it will be swallowed up in the general mass and fail of its full effect. In this, as in many other matters of art, we have lost sight of that tradition from which all advance must be made, and without which none is possible.

The Greeks in the Acropolis, the Romans in the Forum, gave us a model for all time of the way to concentrate the forces at our disposal for the beautifying of a city. Contrast the effect of such spaces, enclosed by splendid edifices and adorned with countless masterpieces of plastic and architectural art, with the forlorn bronze figure stranded on its pedestal amid a tearing stream of traffic, which represents the modern idea of a public monument. Its very costume strikes a jarring note in such surroundings, instead of recalling grateful memories of a personality; none may pause to study it but at his proper risk of life; and, with a disgusting contempt of his dignity, the guardians of a hero's memorial have now discovered in it the incongruous site for a public convenience.

The "place" of mediæval and Renaissance times is the direct descendant of the antique Forum. I use the term "place" because our nearest English word "square" connotes quite other associations, and is inaccurate in its implied regularity. The ancient "place" was rarely either regular or square.

It is curious to reflect how entirely the "place" is ignored in our modern city plans for extensions and improvements. The shapeless and congested space where many arteries of traffic meet is accepted without protest as its successor. Granted that the changed conditions of public life render the "place" no longer necessary as a common centre of exchange and commerce, it may yet be well to examine our fathers' works and save of the artistic heritage what may be adapted to our circumstances. We cannot assert that Ludgate Circus is more beautiful than the Signoria at Florence! Is the fault entirely that of modern conditions? May it not lie with the absence of that artistic thought which went to the making of the former?

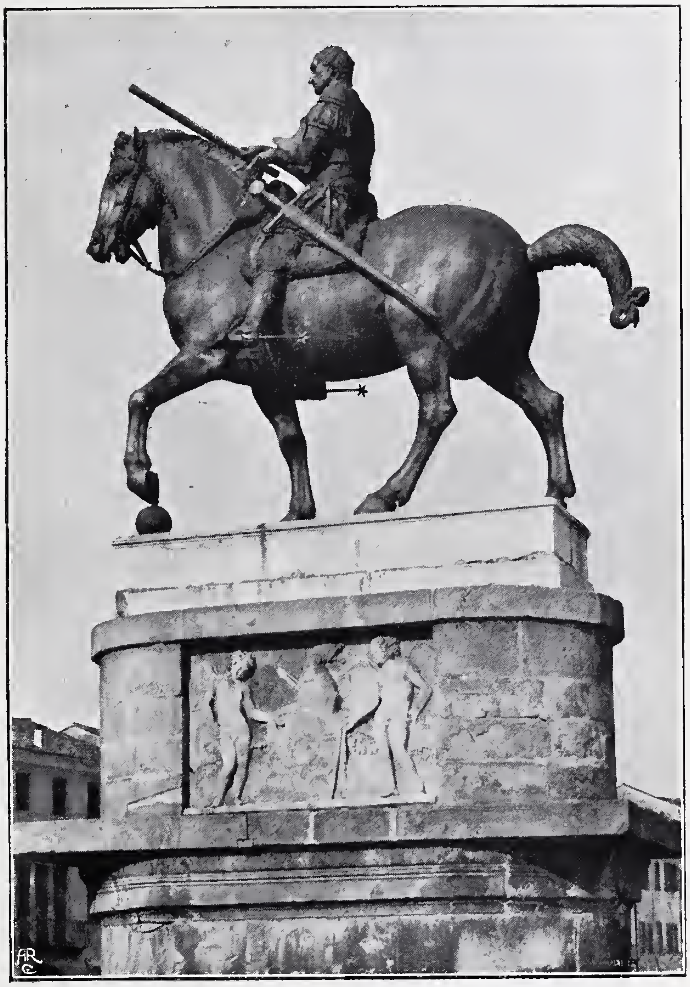


FIG. 4A.—DONATELLO'S STATUE OF GENERAL GATTEMALA, PADUA.

If we study the plans of ancient "places" we shall find that, despite their apparently aimless irregularity, they were in fact constructed upon definite principles. And first let us notice that the statues, fountains, and other monuments were placed, not in the centre of the space as now, but at the sides. That fountains should be placed beside the beaten trackway where animals may slake their thirst is natural; the Schönerbrunnen fountain at Nuremberg [fig. 1] is a well-known instance. They will be found similarly placed in the Signoria at Florence, in front of the Palazzo Communale at Perugia [fig. 3] and many other places, but rarely or never in the axis line of the palace or square. The position of Donatello's equestrian statue of Gattemala beside the church of St. Anthony of Padua [figs. 4 and 4A] is pointed to by Sitte as most instructive. "If," says he, "one at first observes with surprise how it differs from those advocated by our stereotyped modern systems, one is quickly struck by the superb effect of the monument so placed," and you no longer wonder at its orientation and other unconventionalities. As the Gattemala and the little column stand at the side of the entrance to the church, so the obelisks and statues of the Pharaohs rose beside the doors of the temples.

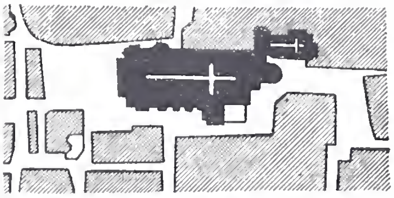


Fig. 5.—Verona : Piazza del Duomo.

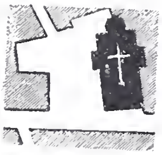


Fig. 6.—Palermo : S. Cita.

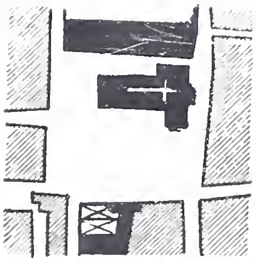


Fig. 7.—Lucca : S. Michel.

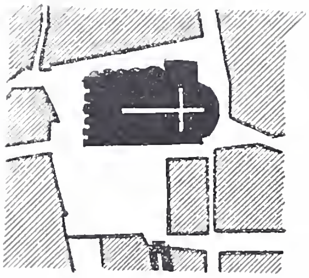


Fig. 8.—Vicenza : Piazza del Duomo.

Another point to be noticed is that the ancient churches in Italy were most often engaged on one or more sides with other buildings, and we shall see how this tended to produce those groups of open places which give such charm to the buildings. At Padua we find this in the plan just referred to, and you will note the large space formed in front of the entrance, giving value to the dominating façade and doorway. I give another instance at Verona [fig. 5], and one with the "place" at the side of the church, which is more unusual, at Palermo [fig. 6]. While on this point it is interesting to note that at Rome, out of 255 churches forty-one are attached on *one* side only to other buildings, ninety-six abut on *two* sides, 110 are engaged on *three* sides, two on *four* sides, and six only stand entirely free. Of these six, two are modern Protestant buildings, and the other four are surrounded by narrow streets.

At Lucca [fig. 7], Vicenza [fig. 8], and Pisa [fig. 9] we have instances of churches standing free, but you will observe that the same rule is applied to them as to the monuments: they are not in the centre, but upon the sides of places of moderate size, and gain vastly in effect by their position. The modern taste is to strip these old masterpieces of their surroundings, to their infinite detriment: their frames were designed for them, and cannot be removed without destroying valuable qualities in the work so treated. Baumeister indeed enunciates as a principle: "Old buildings should be preserved, but they must, so to speak, be removed from their shells and restored"!

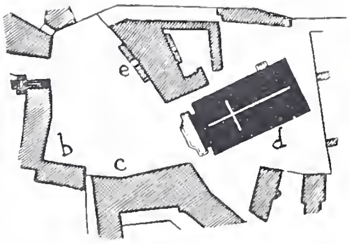


Fig. 9.—Pisa : *b*, Palazzo Vecchio. *c*, Palazzo del Podesta. *d*, S. Stefano. *e*, Palazzo dei Anziani.

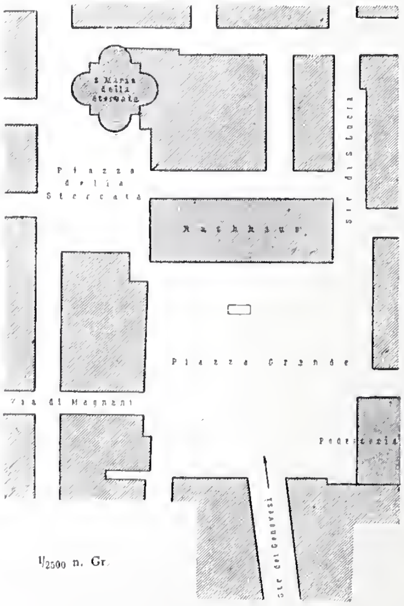


Fig. 10.—Parma : Piazza Grande.

A most important feature in the plan of the old public place is that it was enclosed, and this is a principal element of its charm. No mere open space between streets will give it—the appearance of an unbroken frame of buildings is essential. I say appearance, because the opening of side streets upon the old "places" was always most carefully contrived so as to avoid a gaping breach in the continuity of the frame.

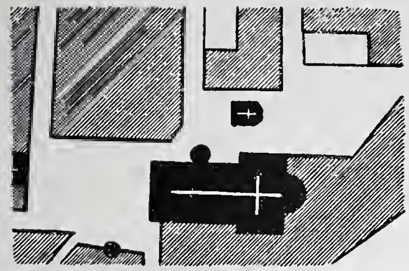


FIG. 11.—RAVENNA: Piazza del Duomo.

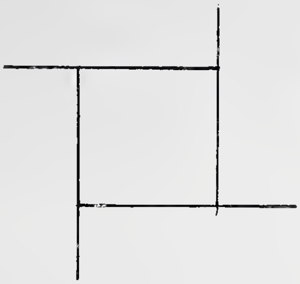


FIG. 12.

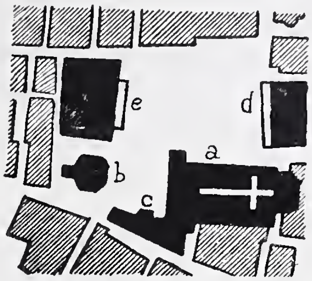


FIG. 13.—PISTOIA: Piazza del Duomo. *a*, Duomo. *b*, Baptistery. *c*, Bishop's Palace. *d*, Palazzo Communale. *e*, Palazzo del Podesta.

Two typical instances are those of the Piazza Grande at Parma [fig. 10] and the Piazza del Duomo at Ravenna [fig. 11]. The latter illustrates very clearly a remarkable feature of the ancient "place," which Sitte calls the plan "en bras de turbine" [fig. 12]. It is repeated so frequently, more or less completely according to circumstances, that it may be considered one of the conscious or unconscious principles of the construction of ancient cities. The streets thus leading off perpendicularly instead of horizontally to the visual rays, the angle joints, so to speak, of the frame are not obtrusive. The Piazza del Duomo at Pistoia [fig. 13] is another example.

The Archway or Colonnade is a feature employed

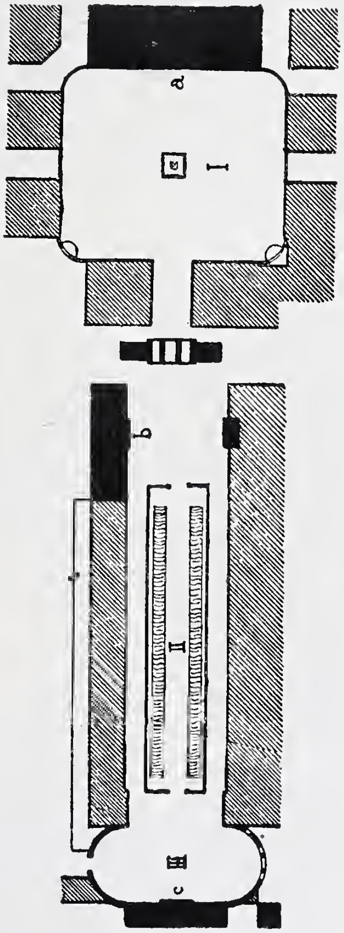


FIG. 15.—NANCY: I. Place Stanislas. II. Place de la Carrière. III. Hémicycle. *a*, Hôtel de Ville. *b*, Palais de Justice. *c*, Palais du Gouvernement.

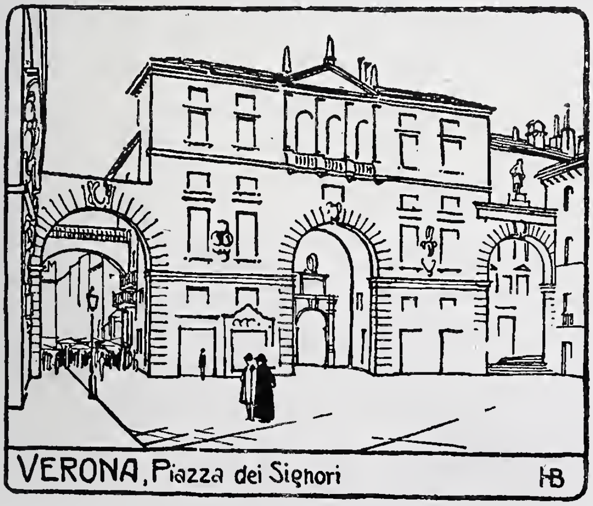


FIG. 14.

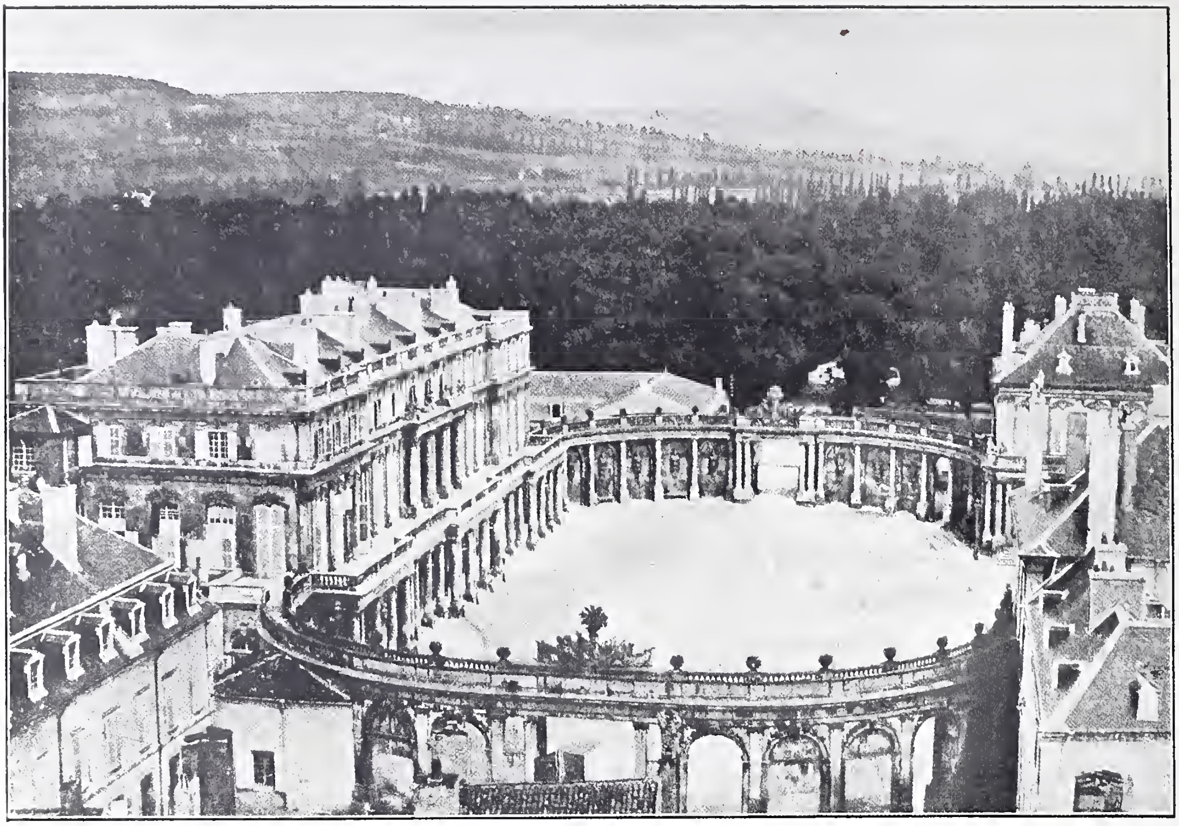


Fig. 15a.—Nancy : Hemicycle of the Place de la Carrière.

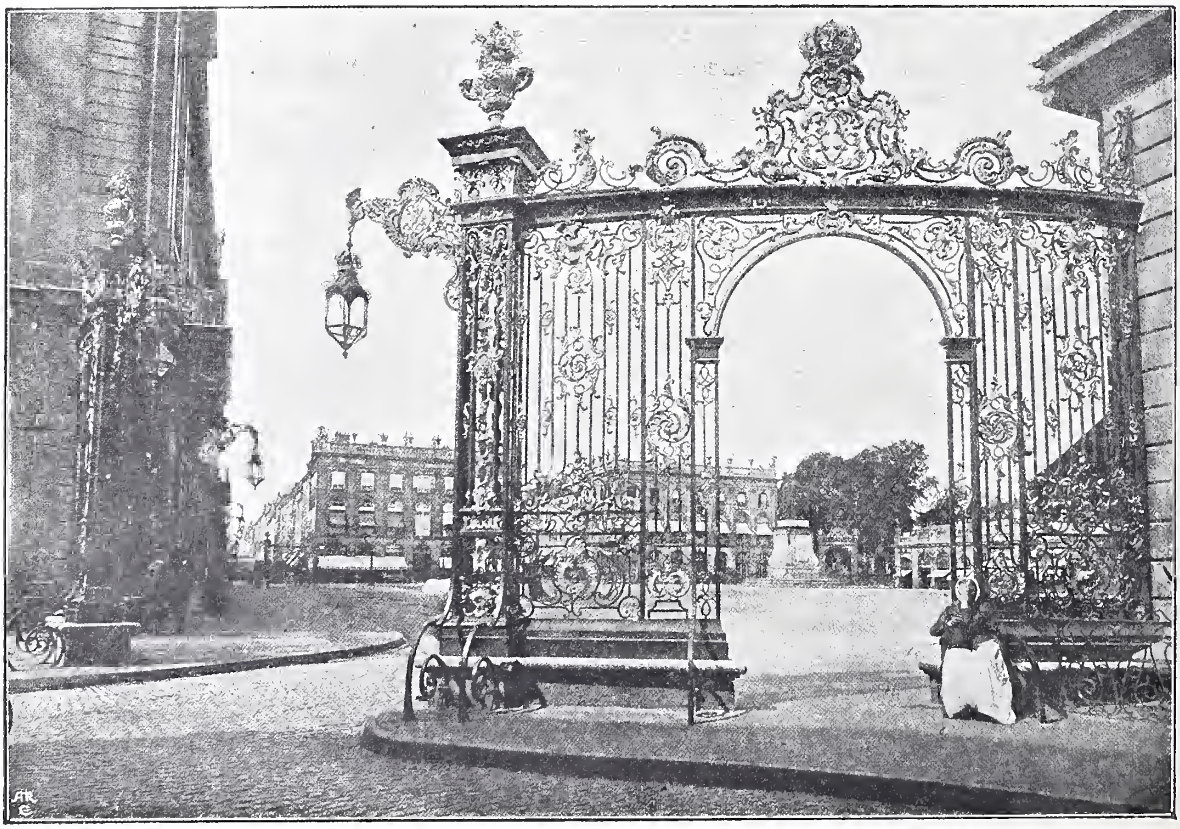


Fig. 15b.—Nancy : Entrance to the Place Stanislas.

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with splendid variety of effect to complete the girdle of buildings in open spaces. The Piazza Signoria at Verona [fig. 14] is one of many instances, the hemicycle of the sixteenth-century Place de la Carrière at Nancy another [figs. 15 and 15A]; and you will notice the use of the great forged iron gates in the Place Stanislas (built from the plans of Héré in 1752–1756), close adjoining the last [figs. 15B and 15C], to close the open angles which would otherwise have left the sides disconnected.

Here, then, are two leading principles of such plans. The monuments being placed at the sides, the centre of the square is left free, and the space is enclosed by a continuous frame of buildings. Next, the "place" must be proportionate in size and shape to the buildings to which it is to give value. Generally speaking, the space in front of a church or other vertical composition will be found to be *deep*, while that before a town hall or other building whose characteristic is length is usually *wide*.

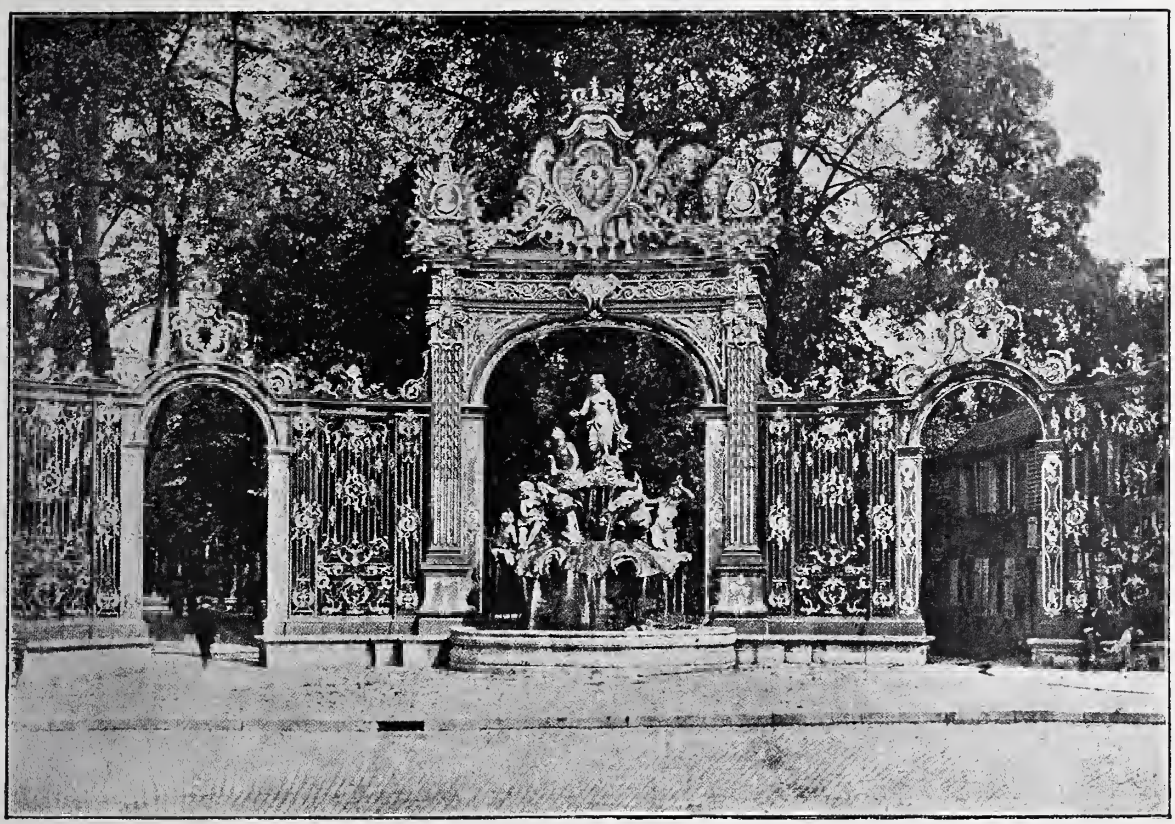

FIG. 15C.—NANCY: Fountain of Amphitryon.

The two piazzas at Modena [fig. 16] are typical and instructive. The Piazza Reale dominated by the Palace is wide and large, and the Piazza Domenico deep and small, and the effect of the one is enhanced by the contrasting form of the other. The way in which the streets open upon them should be noted. The street passing in front of the church does not break the frame, since its direction is perpendicular to the visual rays of the observer, and those entering towards the façade do not destroy the effect, since they are at his back. The projection of the left wing of the Palace is not accidental. It serves to prevent the attention being lost in the side street, and to clearly separate the two squares. Too large a space is not

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desirable; in the first place, it reduces the apparent size of even a colossal building, as in the case of St. Peter's at Rome; and in the second place the idea of size in the square itself is not increased indefinitely by the increase of its proportions. Sitte remarks that if a narrow strip of ground be added to a small space the result is perceptible and often advantageous, but if the space be already large the addition is hardly to be noticed.

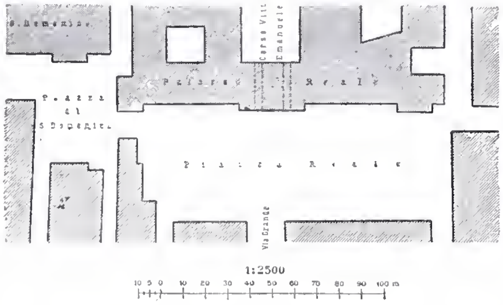

FIG. 16.—MODENA: Piazzas Reale and San Domenico.

In connection with this subject of scale he gives a very striking illustration. "In architecture," says he, "the relation of proportions plays a far greater part than actual size. You may see in many public gardens statues of dwarfs over six feet high. There exist, on the other hand, statuettes of Hercules no higher than your finger; yet it is the larger of the two which is the pigmy, and the smaller the hero." The scale, then, of the "place" must be that of the chief buildings in it. We have all experienced the discomfort of the gigantic modern spaces across which we have hurried with our lives in our hands, a discomfort we never experienced in the smaller ancient squares. Yet the Piazza di San Marco gives an effect of space and grandeur quite lacking in modern examples, although its extreme length only equals the width of Russell Square.

The irregular plan of ancient "places" is a feature presenting some striking points of interest. Our forefathers did not design streets in interminable right lines and squares of faultless regularity. Here are four squares in Siena [figs. 17, 18, 19, 20]. Yet these departures from our modern ideas of symmetry do not distress us in execution; they appear natural. There are sound optical reasons why these deviations from regular form, so obvious upon paper, escape our attention on the spot. The eye is disposed to disregard irregularities which are not forced upon it, and does not, even in the trained observer, calculate angles with exactitude. It is thus disposed to regard forms as more regular than they really are. The old plans were not conceived with drawing boards and tee-squares; the builders did not, therefore, trouble about theoretical symmetry, but they realised in practice what actually caught the eye.

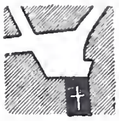

FIG. 17.—SIENA: S. Pietro alle scale.

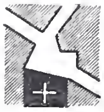

FIG. 18.—SIENA: S. Vigilio.

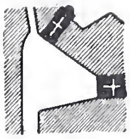

FIG. 19.—SIENA: V. d. Abadia.

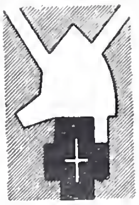

FIG. 20.—SIENA: S. Maria di Provenzano.

Let us examine two well-known "places" and note the difference between their graphic representation and their real appearance. In the Piazza Santa Maria Novella at Florence [fig. 21] the square has really five sides; but as we see but three sides at once in reality and the angle formed by the other two is always at our back, we conceive of it as having but four sides. The effects of perspective and the difficulty of judging the actual angle formed by the sides render it difficult to estimate the true form. The Piazza dell' Erbe at Verona [figs. 22 and 23] is another example of unnoticed irregularity. Nothing is really more difficult than to reconstruct in memory the plan of an open space from a perspective view.

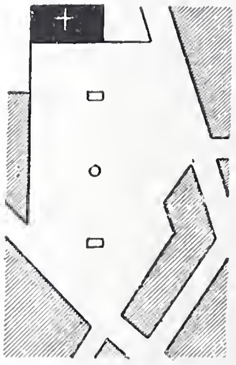

FIG. 21.—FLORENCE: Piazza S. Maria Novella.

I will not trouble you with a disquisition on the laws of symmetry, and the reference of Vitruvius to the "proportio quæ Græce ἀναλογία dicitur" (III. i.). Sitte says bitterly, "The idea of symmetry is spreading in our time with the rapidity of an epidemic. It is familiar to the least cultivated folk, and each thinks himself qualified to say his word in such nice questions of art as that of laying out cities; for he believes himself to possess the sole touchstone necessary—symmetry."

The Bavarian law of 1864 has endeavoured to meet the artistic needs of the country by a direction to architects to "avoid in their designs all which may offend against symmetry and morality." "It is not stated," adds Sitte caustically, "which of the two misdemeanours is considered the more serious"!

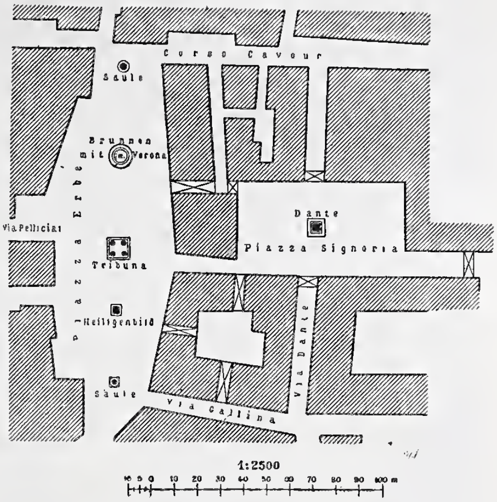

Fig. 22.—Verona: Piazzas Erbe and Signoria.

I have already referred to the engagement of the old churches and palaces with other buildings, and to the resulting grouping of the "places." Let me illustrate a few examples only. At Modena [fig. 24] the Piazza Grande opens up the lateral façade and apse of the Cathedral. It forms a complete design, and is connected to both the Piazza della Torre and the space before the west front, but without forming gaps in the frame. The former "place" is of course intended to give a perspective upon the beautiful campanile and enhance its effect. Remark, too, the street leading up to the principal entrance, a very favourite effect, of which the Église Notre-Dame at Bourg [fig. 25] offers a well-known instance.

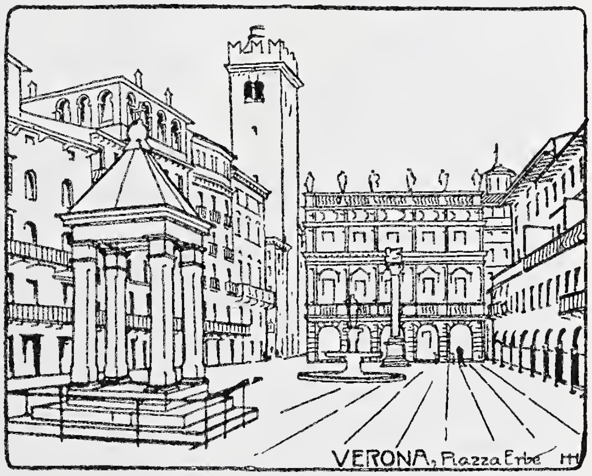

Fig. 23.

At Perugia we find the Piazza S. Lorenzo [fig. 3], at Vicenza the Piazza dei Signori [fig. 26], each with its characteristic secondary square. At Brunswick [fig. 27] there is a most interesting grouping of buildings and squares. The church of St. Martin rises on one side with a deep "place" before its principal façade and a wide one on its lateral elevation, while the old Town Hall abutting on other buildings dominates the Market Place. The Cloth Hall is thus also surrounded by squares whose buildings harmonise with its design. This beautiful composition is formed of intimately connected parts, and the effect of each square and of each building gains immensely thereby.

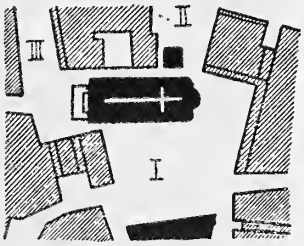

Fig. 24.—Modena: I. Piazza Grande. II. Piazza della Torre. III. Piazza della Legua.

Examples could be multiplied indefinitely. Permit me, however, before leaving the subject to refer you once more to the Signoria at Florence [fig. 28], which, as you will see, has also its secondary "place" in the portico of the Uffizzi. This Signoria is, from an architectural point of view, the most remarkable

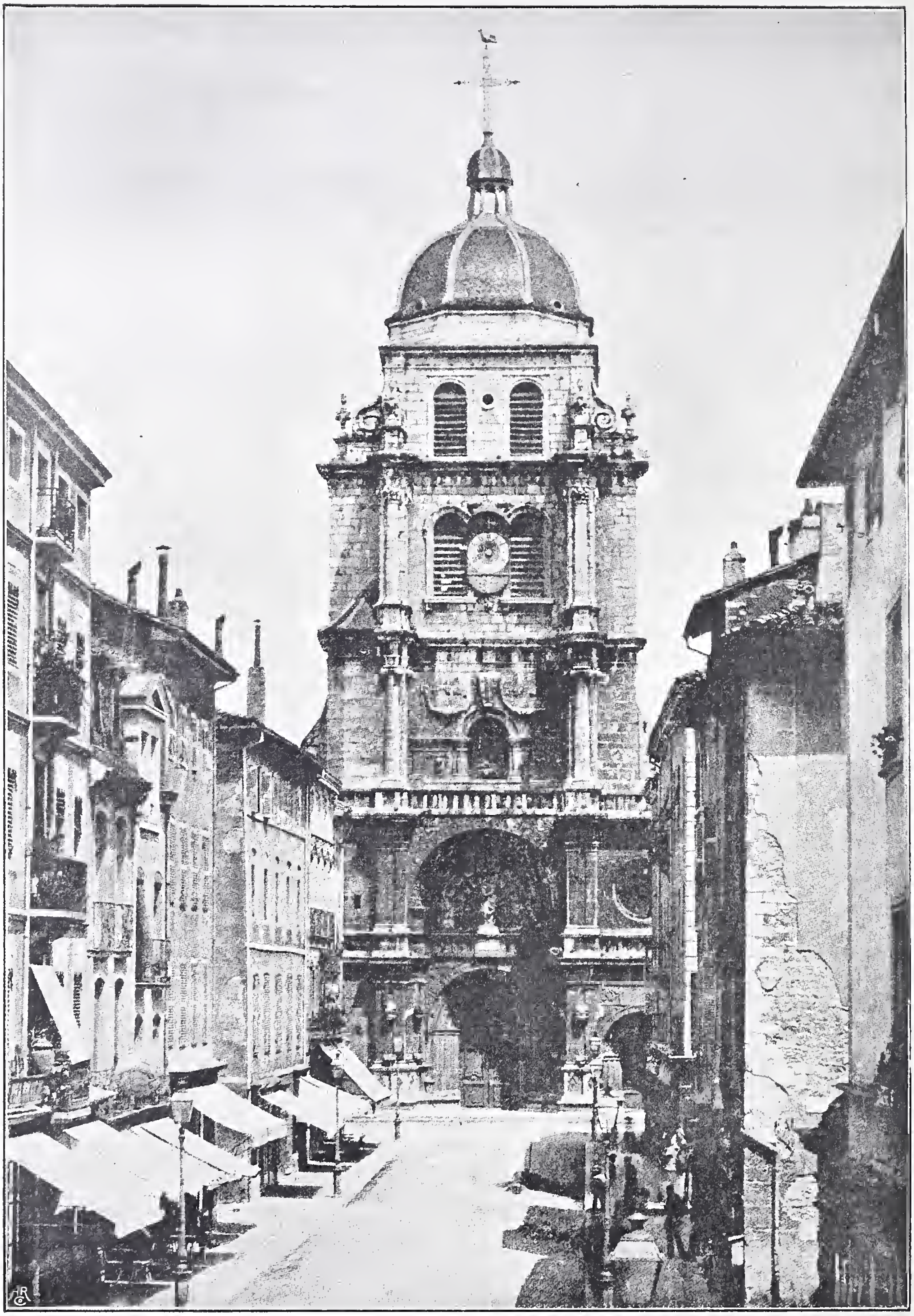

Fig. 25.—Notre-Dame, Bourg.

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square in the world. Its form and size, contrasting with that of the Uffizzi adjoining it, the disposition of its monuments and buildings, the way in which the streets deliver into it, are all admirably studied. As Sitte well says, "No effort is apparent, and the superb composition is admired without disturbing thoughts as to the causes of its beauty." Yet generations of great artists have occupied centuries in the making of this masterpiece.

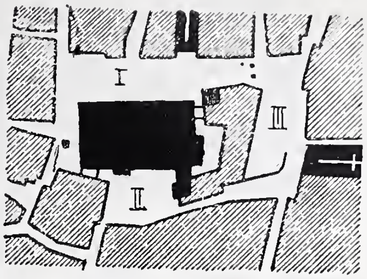

Fig. 26.—Vicenza: I. Piazza dei Signori. II. Pescheria. III. Piazza della Biava.

Lastly, I shall ask you, with the principles we have deduced before you—the placing of monuments, the freedom of the central space, the enclosed frame, the absence of geometrical regularity, and the value given to squares by their combination with others of varying form and size—to examine the plans of the Piazza di San Marco and the Piazetta at Venice [fig. 29]. Here you will find these principles exemplified with the most refined art.

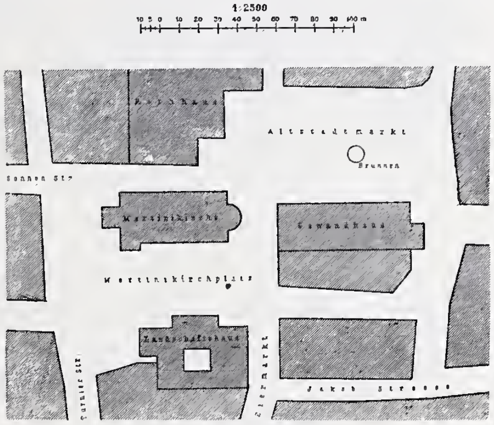

Fig. 27.—Brunswick.

The Piazza is a deep space in relation to St. Mark's, and wide in relation to the Procuratie. The Piazetta is wide as regards the Doge's Palace, and deep with especial reference to the splendid view of the Grand Canal and S. Giorgio Maggiore in the distance. Before the N. side of St. Mark's extends a third little square. The Campanile, now, alas! fallen, mounted guard between the two chief places. Other causes than that of the actual plan have, of course, contributed to the extraordinary beauty of this combination: colour, sculpture, material have each inspired the scene. But you have only to imagine St. Mark's standing in the central axis of a large regular square, and the Library, the Procuratie, and the Doge's Palace, instead of being gathered in a single composition, distributed along a great street 150 feet wide, to realise that the masterly ordering of its parts is, above all, that which delights us in the splendid masterpiece we still enjoy.

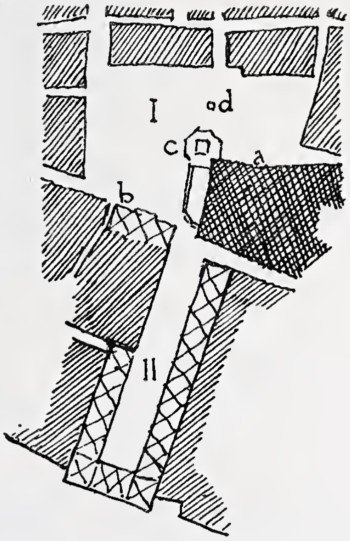

Fig. 28.—Florence: I. Signoria. II. Uffizzi. *a*, Palazzo Vecchio. *b*, Loggia dei Lanzi. *c*, Fountain and Statue of Cosimo I.

I should have liked to put before you some examples of the great seventeenth and eighteenth century "places" showing the stately effects, though of a different kind, which are attainable by other methods than those we have studied. This pleasure I must forgo on this occasion, and the limits of time at my disposal allow me to offer you only one or two brief notes on street planning.

I will not trouble you with the theoretical systems which have each their advocates when a new city or the extension of an old one has to be planned. Rectangular, radiating, or triangular, they are one and all devoid of artistic interest; nor does such a consideration enter the minds of the engineers who design them. Their regular geometry even is only appreciable upon paper; it cannot be perceived by those who see the executed work. The one obvious idea is to construct the shortest route between any two points in order to save time in transit. Being, as I have said, inartistic, it follows also that they fail to solve even this practical problem in the best way. One example only by way of proof. In ancient towns you will find, first, that nearly all side streets enter main thoroughfares at right angles. In the modern triangulated and radiated schemes acute angles are inevitable, as may be seen by a glance at the plan of the contemporary "Quartier du Sud" at Antwerp [fig. 30]. In the second place the ancients avoided as far as they could the delivery of several arteries of traffic at the same point. This principle is now quite neglected, with the result that we obtain such hideous jumbles as the nameless space in front of the Mansion House [fig. 31].

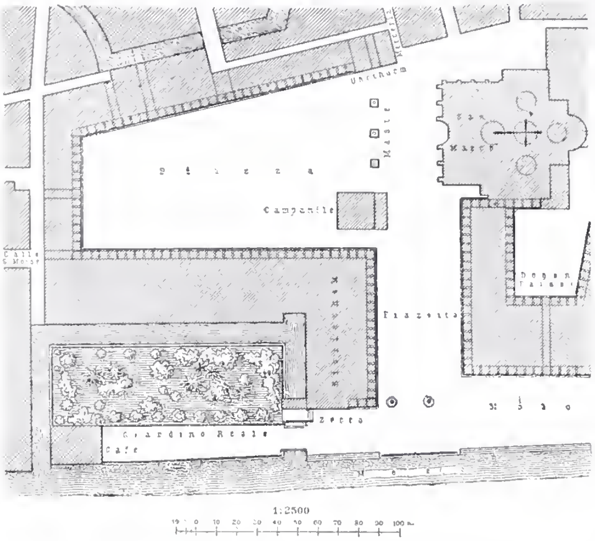

FIG. 29.—VENICE: Piazza di San Marco and the Piazetta.

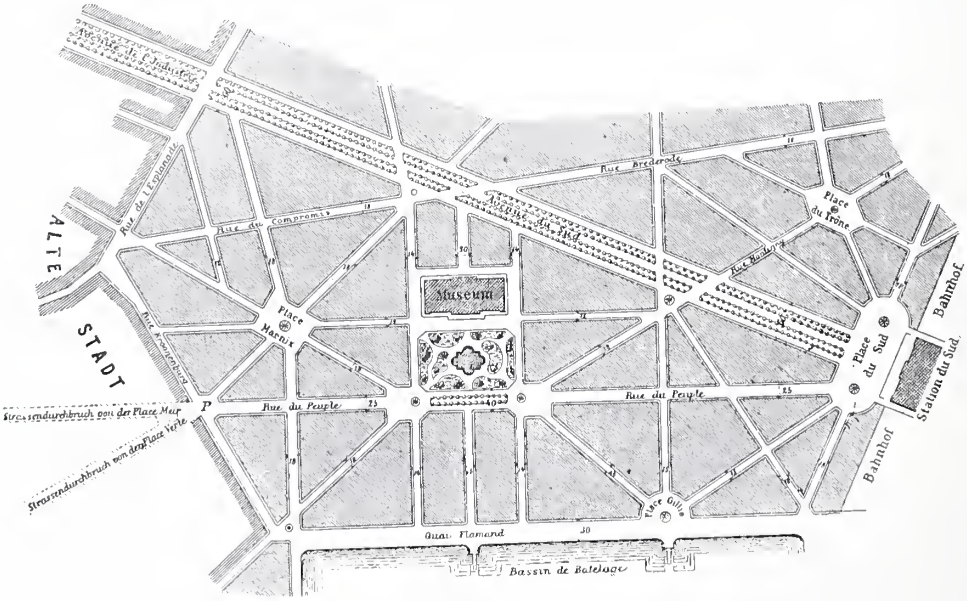

FIG. 30.—ANTWERP Quartier du Sud.

Let us turn again to our forefathers whose work we may see pretty much as they left it at Bruges. Do not smile at the juxtaposition of the Mansion House and Bruges as incongruous; in its time Bruges was the commercial centre of Europe, with 200,000 inhabitants, and its streets and squares were planned for the requirements of a dense traffic. In the whole of Bruges you shall hardly find a street which forms an acute angle with another, nor a crossing of more than one street with one other. Where a street approached another obliquely, or threatened a complicated intersection, its line would be curved so as to avoid acute angles and confusion [fig. 32]. Nowadays we should have carried a street (*a*) through in a straight line, and so have destroyed the little "place" (*b*), besides giving wasteful building blocks at the street corners.

If you consider that the chief object of modern street-planning is to save *time* in getting from one point to another, and not merely to construct the geometrically shortest routes between them, you will understand why I have taken you back to Bruges and the fourteenth century in search of guiding principles. Let me show you an instance [fig. 33]. Taking the first diagram of a side street opening into a main street, it will be seen that there are six possible routes for vehicles A B, A F, C B, C D, and E F, E D. There are three possible points of collision in these trajectories; three points where, if two vehicles approach at the same time, one must slow up or stop to allow the other to pass. If the first street is continued across the second [fig. 34], we obtain twelve different routes, three alternatives from each of the four possible directions, and this, you will see, gives no fewer than sixteen collision points. But let us break the axis line [fig. 35] and form a little "place" such as you will find by scores in old towns, and confess which is the more scientific scheme from the point of view of the traffic. Or, if this is not convincing, add but one more street to your crossing [fig. 36] and work out the result. Five possible routes from each of six possible directions and no fewer than 120 actual collision points, apart from tangential accidents

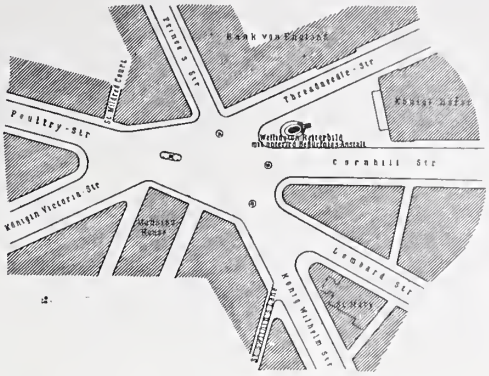

FIG. 31.—LONDON: Mansion House.

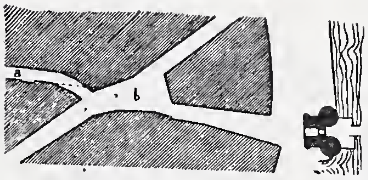

FIG. 32.—BRUGES.

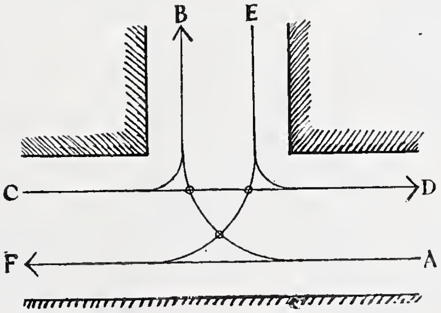

FIG. 33.—Three directions from which carriages may arrive. Three collision points.

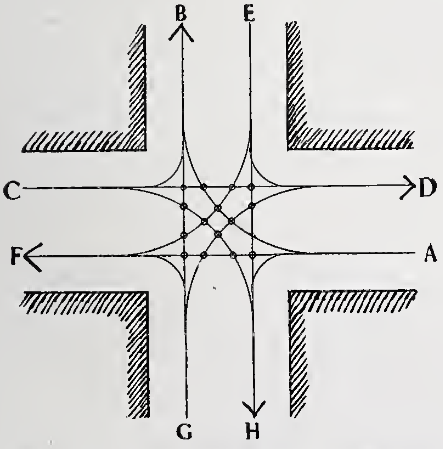

FIG. 34.—Four directions from which carriages may arrive. Sixteen collision points.

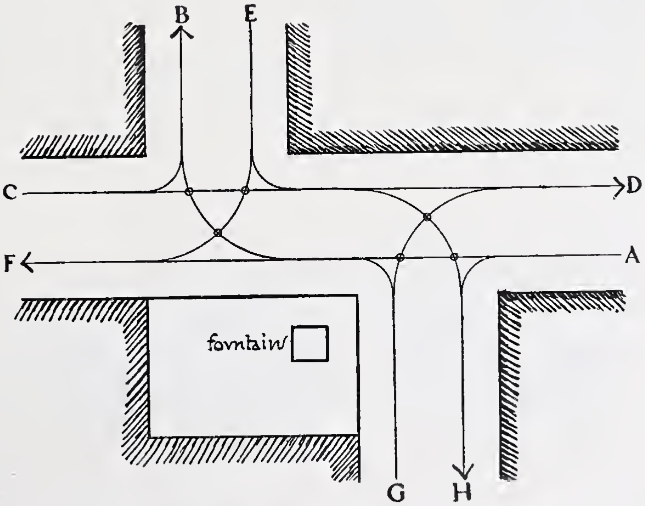

FIG. 35.—Four directions from which carriages may arrive. Six collision points.

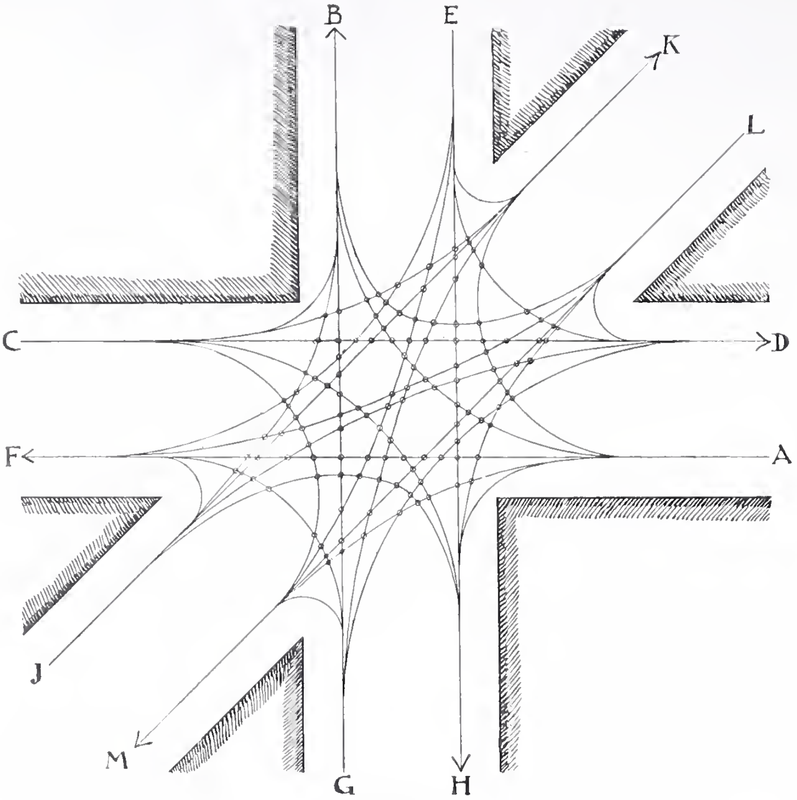

Fig. 36.—Six directions from which carriages may arrive. 120 collision points.

such as may well happen on such routes as L F, J D.

The principle of framing the view by enclosing it and preventing distracting perspective is carried out with as delicate an art in the plans of ancient streets as we have already seen it to have been in those of open places. The more limited the impression the more complete is its effect was the sound axiom of art which, consciously or by tradition, guided the old street builders. The gentle curvature of their lines closed in the perspective and offers to the eye fresh pictures at every step. Now, of course, at great and wasteful expense these windings are daily destroyed in order to obtain a mechanically regular alignment.

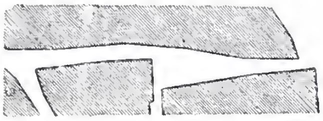

Fig. 37.—Bruges: Rue Saint-Amand.

There is no reason, either practical or artistic, why our streets should have monotonous parallel sides. Take, as an example, the characteristic little "Rue St. Amand" at Bruges [fig. 37]. Not only is such a varying line picturesque and advantageous to the buildings, but it affords exactly those spaces for the cab-stands, telephone and fire-escape kiosks, and other constantly increasing requirements which are difficult to provide for and cause obstructions in uniformly regular streets. Violent bends are not necessary; a slight curvature or displacement of the axis line will produce the happiest effects. The concave line of frontage is the most valuable in improving the appearance of a street, and it should be broken as little as need be; the convex side is less disturbed by openings in it, but is less favourable for important façades, as the field of vision is more limited in that direction. If the street must be straight it should not be too long, for the continued view of the same distant objects produces a sense of fatigue and failing interest. Excessive length, moreover, in a straight street leaves the wayfarer exposed to all the discomfort of sweeping winds and their consequent clouds of noisome dust.

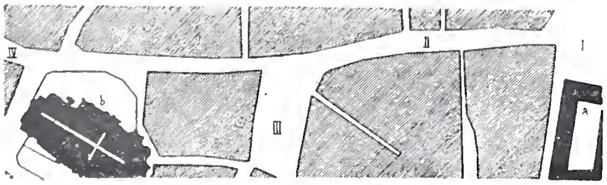

Fig. 38.—Bruges: *a*, Halles. *b*, Cathédrale Saint-Sauveur. I. Grand' Place. II. Rue des Pierres. III. Place Stevin. IV. Rue du Sablon.

Sitte has selected the "Rue des Pierres," also at Bruges [fig. 38], for an interesting analysis as illustrating the principles we have deduced. It leads, as the plan shows, from the Grande Place to the Cathédrale St. Sauveur, being continued thence to the station by the "Rue du Sablon." It is slightly undulating, and in the first part of the street the right side is concave. Beyond the Place Stevin, its direction changes to the right, and it is the left side which develops the concave line. The view [fig. 39] is taken going from the Grande Place before reaching the Place Stevin. This, conformably with ancient use, is situated at the side of the street, and is not, as is nowadays customary, traversed by it. A market or meeting can be held there without disturbance, for it is out of the line of traffic for carts or pedestrians. Its being placed on the concave side of the street is exceptional, for, as I have pointed out, the ancients interrupted the concave side of a street where the buildings are well seen as little as possible; the break in the frame is more apparent there than on the convex side. Here the effect of the break is minimised by the Tower of St. Sauveur which closes in and dominates the picture. Turning backward, the view of the spectator is arrested by the belfry of the Market Place marking the other end of the street.

The special character given to the street by these two towers is due in the first place to its curvature; each tower thrusting its height above the roof comes unawares upon our wondering vision. To-day it is thought fine to see, hundreds of yards ahead, a single tower, standing geometrical, at the end of a street which we despair of reaching. The desire to display a lofty edifice or a natural effect to advantage is the reason for many of the windings of old streets. Note also, by the way, the fewness of the side streets which open into the "Rue des Pierres" and the absence of any cross street. This may perhaps be impracticable nowadays, but there should be found some happy mean between this old-world ideal and the mangled thoroughfares of our modern towns.

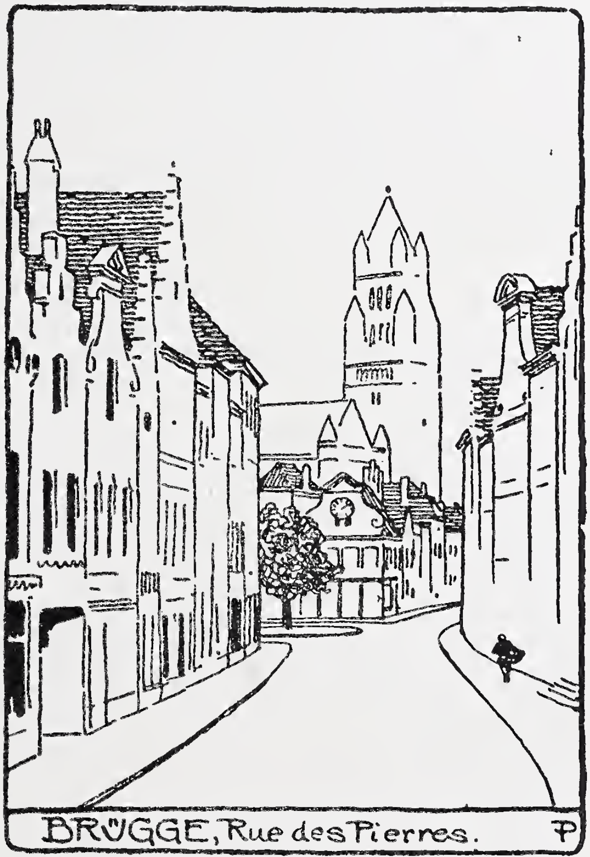
BRÜGGE, Rue des Pierres.

Fig. 39.

Here, at "Bruges la morte," I must leave you, unable, as I forewarned you, to do more than touch on one or two outlying points of my fascinating subject. Is it hopeless to suppose that in time our authorities may perceive that mere pulling down, aligning, and widening of streets will never meet our traffic requirements, and that what is needed is artistic and considered planning? To the Institute students especially do I commend this problem. Let them not be content to continue by mere tradition the measurement and study of the individual building and its details, important though these be. There lies a rich reward for those who will consider the combination, construction, and grouping by which effect is gained; and our Prizes Committee might perhaps judiciously stimulate synthetic as well as analytic investigation.

"We do not wish," said Walter Crane very happily a few days ago, "to see London

Haussmannised." The circuses or "Ronds-Points" of Paris, planned primarily with political rather than artistic motives, with the fear of an "émeute" before the designer's eyes, are repeated without intelligence in cities where no need exists to dominate a rising by centrally posted troops and artillery.

As generations come and fade away, the knowledge of our fathers, which was based on observation and experience, is discarded as superstition, quackery inadequate to the needs of nowadays, and we proceed to derive true principles from newly discovered facts. As the search for truth succeeds we are continually amazed to find our fire-new principles pointing back to precisely those results our ancestors achieved by instinct and tradition. Then the obsolete is revived, being hall-marked by new methods as sterling for our use.

So I think it is with the problem of cities. We have, as is so often the case, neglected the obvious and disdained the open book of wisdom our forefathers have written. Nay, more, we have, alas! too often spoiled and torn with ignorant self-sufficiency the pages they wrote for us. At least, let us guard with jealousy the few remaining, and, assiduous students of the fading script, strive ourselves to add some further lines of beauty to our children's heritage.

II. By Professor Beresford Pite [*F.*].

I PROPOSE to confine our attention to those considerations which are applicable specially to London, and therefore the planning of London and its public spaces becomes my subject.

It must be manifest that counsels of perfection which originate and govern the planning of an architect's Utopia or of a Garden City change in value when the case is altered from the ideal to the real, from the dreamland of one artistic brain to the grim actuality of that aggregation of buildings which in a modern free community forms a city.

There seems to be a settled pessimism among architects as well as among public men interested in art on the subject of the general aspect of our cities, artistic sympathy finding its outlet in forming private collections of articles of vertu and in the cultivation of the smaller arts rather than in the decoration of the city with beautiful buildings. Financial considerations, too, so largely enter into the subject that it becomes necessary to wait for times of mercantile prosperity before great works are undertaken, and these are so slow in gestation that the financial conditions have changed before anything is done.

These considerations might appear to render our subject futile for discussion elsewhere, but this Institute of Architects is an exception to the rule of corporate bodies, in that it professes to have a conscience, which it exercises, however, on behalf of the public rather than for itself, and, therefore, in spite of omens, gives utterance to groans and warnings, and finds relief thereby.

This Institute, at all events, exists under Royal patronage, not for the protection of the private interests of architects from unrestricted competition, but for the advancement of an art which creates a city out of the aggregate works of its members; therefore it may be claimed that the architectural effect of collective buildings is an especial charge of the corporate body of architects. May the works of our members indeed express the character and attainment of the State in those liberal and refined interests which elevate a people!

Upon the superior commercial value of well-designed, wide streets and grand public spaces, compared with ill-arranged and ineffective ones, there can be no doubt. In London financial success has waited on the laying-out of Regent Street, and such thoroughfares as Moorgate and King William Streets and the Holborn Viaduct.

We also have this in our favour, that the contributing public views with a steady approval the creation of any manifest public improvement, and, provided that the result is pleasing to the eye and attains some practical end, contentedly pays up and forgets to grumble, believing that value has been obtained for the money. There is some evidence, too, in the recent action of the County Council with regard to public spaces and the widening and connecting-up of thoroughfares, that the subject is interesting those who have the advancement of urban amenity at heart; while the recent creation of municipal organisations will develop local interest in the larger aspects of street architecture and stimulate emulation between the boroughs.

It may be safely asserted that there are public spaces and centres of comparative architectural interest and artistic value in each of the townships which now constitute London as a whole, and that from north to south, and from west to east, our city is dotted over with picturesque elements which some little attention, conservation, and perhaps improvement, may crystallise into characteristic and pleasing groups and arrangements. Reflection will, without the aid of maps or photographs, recall typical centres of locomotion and of concentration of traffic and buildings which have each a character only definable by its local London name.

Tower Hill, before all others, has history, as well as artistic charm and dignity, and a large freedom of space and openness to the river, which account well for its being above all spots precious to intelligent Londoners.

Smithfield has a large spaciousness, too, and splendidly characteristic markets, besides all the interest partly screened and revealed of its ancient priory and great hospital, not forgetting the mysteriousness of the subterranean roadway.

King's Cross has railway termini and restlessness, and the ragged landscape of the Euston Road, when new so full of hope, but soon to be clarified and restored by resolute resolution of the Council.

Whitechapel, with its old haymarket width, the shambles, and picturesquely situated modern church, suggests itself.

St. George's Circus is finely planned, and occupies the natural centre of London, as a look at the map will show, and has the noble Bethlehem Hospital beautifully placed near by; but the Elephant and Castle is to Londoners more than any other spot characteristic of the Surrey side; and Camberwell Green, Kennington Gate, and the site of the new Lambeth Town Hall at Brixton may all be instanced as differing greatly and conveying widely different impressions, each almost entirely accidental in origin, and, perhaps with the exception of St. George's Circus, unplanned, or in ordinary acceptance unarchitectural, yet not truly so.

This haphazard list may be taken as providing sufficient instances to show that each district or borough of London has opportunities for the conservation of the interest of public places and thoroughfares which are not far to seek for the exercise of local patriotism.

It should be remarked that this accidental characterisation of districts has a value which the formal and regular arrangement dreamt of by many as necessary, and instanced in some Continental towns, cannot give. The gradual outward development of the great population that London has possessed during the past century has effected itself by stages that have created new centres of interest at each junction of highways, where churches (early in the century), railways (half way through), and town halls (latterly) have been placed. It does not indeed require local patriotism with rose-coloured glasses to see this; the open mind of a New Zealand artist—unfettered by the traditions of the architect of to-day—will appreciate the charm, and would blame the assembly which listened approvingly to emphatic dicta as to symmetrical regularity, squareness of proportion, and unbroken vistas through avenues of mansions. But the local patriot or the other-world artist can have his fill of this formality if he wants it in London, for Westbourne Terrace, with its great width and length, despite its stucco, is not to be forgotten or lightly valued: for the "Stuccovia" of the *Londoner's Log-book* has its fundamental dignities and scale in laying out, in spite of its surface hypocrisies.

London has other wider and greater beauties and demands than those of its district characteristics, for which we must ask attention; but before passing to them the value of the latent and inherent qualities of its local landscapes may be pressed home. It will be satisfactory to some of us for the future to view London street corners and public spaces with some other ideal than that they should be squared up at enormous expense and transformed into uncharacteristic and therefore uninteresting exercises in architectural geometry. We shall all desiderate a great increase of refinement, knowledge, and love of noble quality in the architecture of our street buildings, which is in many important instances at present sad evidence of the lack of definite artistic training among architects; but we may, in spite of all, accept and rejoice in the romantic variety and native interest—and I am tempted to add beauty—of the central spots or public places of the great London districts. My plea amounts to this, that owing to the general lack of artificiality or of a formal arrangement of the many features of interest in London street architecture a character has been created which has artistic value, and, generally speaking, London is now in no need of the services of Baron Haussmann to straighten her out. A recognition of the peculiar elements of the city's landscapes will lead to that wise appreciation of liberty, and of practicability, which will not only save us from the personal annoyance of cherishing unattainable ideals, but will enable us to advise local public authorities as to the conservation of those elements of interest and picturesqueness which are valuable.

But the interest of London's planning and the laying-out of her public spaces is not that only of the smaller centres which cluster around her form. Turner in saying that London without St. Paul's would not be London expressed what we all feel to be an almost obvious truth, so grandly has the magnificent form of Wren's group identified itself with our semi-conscious realisation of the dignity and sufficiency of our citizenship and birthright in her; nor is a little of this satisfactory sentiment due to the situation of the Cathedral upon the outer sweep of the great river bend which revealed it of old to all who entered by the great waterway, sitting proudly on the steep but low hill near the banks, and still now is viewed impressively from the southern railway bridges which convey modern travellers from the Continent to London. In a very real sense the laying-out and planning of London depend upon the sweep of the curves with which the river passes through her from the Palace of Greenwich to that of Fulham, and thus controls the direction of the main thoroughfares on both banks from east to west. We may indeed claim the Thames as a great formative influence on London as a whole, and accept its presence and impress upon the entire city as dominant, and again cease regretting that we have no Champs-Elysées, Unter den Linden, or Ringstrasse to glory in.

London does not yet outgrow its river either in extent or scale. The northern and the southern hills of the Thames valley are still the natural boundaries both of her municipalities and fogs, while the bed of the stream is as of yore not yet overpowered by the greatest buildings which London has desired. We are able to add to our characterisation of the planning of the city the curved formation and proportions of the river, and neither the Seine, the Tiber, nor the Spree can make us envious.

I have a suspicion that the world of Englishmen are scarcely yet alive to the imperial grandeur of the Thames Embankments, more worthy of admiration than any scheme of avenues or streets that the world at present holds; and I do not think that we need fear that the future achievement of Mr. McKim's magnificent plan at Washington will deprive us of our boast. Public buildings and national monuments can be more splendidly placed upon the banks of a broad river than on any other class of site; and London, without the enormous expense of forming new roadways and clearing thickly occupied areas for the purpose, is in possession upon the Thames of a series of situations for grand buildings which should awaken the public conscience to the existence of the delights which the art of architecture has the power to reveal.

Connected with the subject of the Embankments is that of the bridges—certainly a more doubtful one for Londoners to be enthusiastic about. There are two distinct aspects of a bridge design: first, that of its width, proportion, and gradient as a thoroughfare viewed from above; and, secondly, that of its elevation viewed from below—that is, from the stream or Embankments. When the necessary new bridge at the Temple appears, may it be as fine as Westminster from above, and as beautiful as Waterloo from beneath. It will occupy a majestic site in the grand curve of the Embankment, so that its perspective will grow and radiate as it is approached; and with Somerset House between it and Waterloo Bridge, and the great Embankment walling below, may create a subject not unworthy of some new English Piranesi.

The three or four awful railway bridges it is more difficult to be optimistic about—one is tempted to sigh for tubes as solvents of the terror. If only electric traction had preceded steam, Greathead with his shield might have afforded protection to the engineering profession from many critical darts, and the public and the Thames Embankment from grievous and constant "moral and intellectual damage." The bridges of Hungerford, Blackfriars, and Cannon Street have no charming sound to the artist; they are felt to be interferences with the river, and in spite of all our professions of submission to common-sense practical requirements, the iron monsters will not reconcile themselves with the massive granite Embankments and yield to the architectural elements of the scene. They have their fascinating qualities, however, to which no lover of reality or of picturesqueness can be blind; they are emphatic embodiments of nineteenth-century needs and economies—original and newborn without precedent or forebears—new in purpose, new in material, and new with many-sided novelty in constructive principle and design; also, grimly new in experimental ornamentation; all these qualities are expressively there, and because of their unexpectedness confound the judgment of the hide-bound architectural purist who can digest nothing that is not *rechauffé* or admire nothing that is not pseudo-megalithic in character. The quality of rigidity of line, both horizontally and vertically, finds opportunity in an iron girder bridge just as motion and active force are implied by the graceful curves of really constructive masonry arches; architects should bear in mind that iron bridges such as those mentioned have revived the almost abandoned expression of actual trabeated force in design. The concomitants of a railway, the signal boxes, the moving lengths of trains, the locomotives with their filaments of steam all contribute to a picturesque interest which if not architectural is sufficiently popular—in these unæsthetic days—to atone for and explain any want of politeness on the part of these girder bridges to the fine arts. In this place, however, we cherish the hope that the fashion for bringing steam railways into cities will soon be over, and that invisible tubes will supply all the needs of rapid urban locomotion. Proper masonry bridges will then replace the temporary and rusted-out toys of a past century, and provide for the accommodation of the now triumphant autocar across the river. It is, seriously, too late to lament the presence of the Thames railway bridges; but how fine a series the termini of the three great southern lines, such as those which lie on the north of Euston and Marylebone Roads, would have been on the opposite bank, each approached by a fine passenger bridge from the city shore. What a saving of time in locomotion, as the railway managers would be saved the problems of bridge crossing and re-crossing; and what an enormous saving to the companies in the cost of city sites for the termini would not this belated reform have effected, with, above all, what an addition of architectural interest and beauty to the river! The Blackfriars railway bridge is the only one that accomplishes any purpose of through communication in crossing the part of the river near the heart of London—and, unfortunate though its presence must always be, one of such is better than three, and its mischiefs might have been alleviated by a more considerate design.

A most special and peculiar charm of English landscape is its varied quality; the romantic dignity of the mountain scenery of the Lake District and of Scotland and Wales contrasting with the agricultural loveliness of the eastern and southern counties, while bleak moorlands and fenland expanses or scenes of rustic landscape, in which colleges and cathedrals combine, are as natural as either to England, the sea-bound beauty of which is a recognisable influence in our willing efforts to try and think imperially.

London, too, has this special charm of varied effects, and while dwelling upon its characteristics with a view to their recognition and emphasis in the mental ideals which are presupposed by the word "improvement," we must guard against being committed only to the accidental elements of picturesque freedom and the character of its districts, or to the natural charm and value of the river to the city. Our purview of art to-day can happily embrace with equal freedom the romantic as well as the classical, and therefore the artificial or scientific as well as the picturesque and accidental effects of street architecture. England, besides rustic natural landscape interspersed with architectural groups, has formal gardens of great sweetness; we gather by contrast zest for the avenue from the rural lane, and for the terraced garden from the hedgerow and village green. The village greens and cross roads of London, say Mile End Waste or Paddington Green, are certainly not comparable in any term with the more formal joys of the Horse Guards' Parade or Park Crescent, and the true Londoner may be satisfied, or specify needed improvements in each, without a narrow conformity either to geometrical or accidental beauty.

It befits us, indeed, to reflect with pleasure upon the remains of the great period of the Regency, when London developed a West End that by its dignified style has given a title of aristocracy to a purely geographical definition. Contemplate the western frontier of London in the first quarter of the last century, from Regent's Park southwards through Park Crescent and Langham Place. Note in passing how finely the portico of Marylebone Church was framed at York Gate, and how skilfully All Souls' Church makes a victorious success of the hiatus between Portland Place and Regent Street. The admirable proportions of the series of groups of buildings in Regent Street to its width of 90 feet make it tolerably cheerful on a dull day—the height of the buildings being equal to about half the width of the street, instead of to the whole, as in our later efforts at street proportionment; the gentle curve at the northern, and the fuller sweep at the southern end in the continuous regularity of the quadrant, lead from circus to circus with a completeness of scheme and satisfactoriness of effect that have not since been equalled in England.

It is, of course, inevitable that the lapse of nearly a century should make inroads upon the completeness of any human scheme, and it is fruitless to deplore the inevitable alterations which renew the face of progressive cities periodically. Regent Street, however, has a special claim to be considered as a whole, for it is such. Its characteristic is harmonious completeness, with a sustained variety in its consistency which is doubtless the unexplained secret of its pleasantness. The whole street was laid out and built with a regal sense of dignified discipline, and it remains the property of the Crown. It is, therefore, greatly to be regretted that latterly rebuilding has been permitted to take place, just as if the street had no harmony to be broken or special character of its own; in fact, as if it were no more than Oxford Street or Westbourne Grove.

Architects cannot forget the charm of the portico of Hanover Chapel, one of the rare but perfect works of Professor Cockerell, which so happily and innocently projected over the footway, supported by graceful towers, at the curved approach to Regent Circus. Nor can we but regard the reasons urged for its removal as being entirely insufficient, or find solace for our grief in the contrast to all its architectural virtues which now vauntingly occupies its site. On the eastern side of the street the harmony has been rudely disturbed as to architecture and scale by modern intrusions which it is only necessary to characterise as extraordinary instances of the blindness of responsible authority to artistic facts. Here is no abstract matter of taste or doubtful question of power to enforce a just objection; the whole estate is still in the same permanent Crown freehold which originated and effected this finely architectural street; no compelling circumstances have altered or depreciated its character; commendation from all qualified to judge at home and abroad has not been showered unwillingly or grudgingly upon the noble qualities of London's best thoroughfare; but the authority which made it has marred it; and a helpless, amazed and disappointed world of artists sees a meretricious vulgarity allowed to assert itself in triumphant possession and deface and spoil the character of the whole street. In view of the enormous labour and extent of the inception and accomplishment of the design of Regent Street, and of its value to London as a whole, it is not in sober truth too much to ask what reasons avail for not undertaking the modification and reconstruction of the recent monstrosities. Indeed, some complete design for preserving the proportions and character of the whole of this fine thoroughfare needs now to be taken in hand, in order that the inevitable effects of the shortening tenures under the original leases, in rebuilding, may be met without reducing the street to such a wreck of its former self as has been achieved at Piccadilly Circus. Any assurance that could be offered to this Institute that the pulling down already commenced in the Quadrant will not eventuate in spoiling the whole would be most welcome; and if it can be given will be a hearty encouragement to those who hope, often in sad misgiving, that the credit which a due recognition of art can give even to a great Government has not been turned into the negative quality of discredit. Why should art lovers nowadays have such a natural dread of the interference of the British Government with fine buildings?

The lower portion of Regent Street and Waterloo Place itself are also in some danger of falling prey to partial rebuildings without unity of treatment as to proportion. The danger is in evidence already at the western corner of Pall Mall, where the modern design which has ventured itself suffers from comparison with the more refined and simpler design in the rest of the square. Londoners have expended some Philistinic wit upon the Crimea Memorial, but no one can deny the fineness of its monumental scale and the harmonious but quiet dignity of Waterloo Place itself. Is this also to be sacrificed? Should not the ordered system of its proportion be maintained with what extension at the angles may be demanded by the buildings of the crossing thoroughfare, but so that in any case the more important harmony of the square be retained? In the removal of St. Philip's Church, Regent Street has been deprived of another refined and interesting front, which had been placed with full regard for the buildings opposite and the proportions of the adjoining blocks. What will follow on its site? Is Regent Street, S.W., altogether surrendered, and its consistency now worthless? Will red brick and earthenware, as close by, again intrude, and proportion be disregarded as in York House?

Such querulous criticism would be worse than vain were it not that the architectural principles which guided the original buildings are still existent, potent, and applicable. A sympathetic guiding hand in the interests of architecture as an art, at the source of approval of all rebuilding schemes, would be able to maintain the old tradition with sufficient liberality, allowing extensions which the changing nature of modern business demands, and we can hope ensure that the larger and better building which may now be demanded should not be deemed inconsistent, as it certainly is not, with finer but still harmonious architecture.

But what of Piccadilly Circus ?—not indeed now a circus of little sins, but a painful example of how in decadent times the primæval disregard of order reasserts itself. Why should the symmetrical plan which was created and endured for scarcely half a century be made a meaningless laughing stock by ruthless disruption ? The revelation of the latter art of the nineteenth century comprised by the Pavilion and the vista of Shaftesbury Avenue, enshrining as a jewel in a swine's snout Mr. Gilbert's fountain, and by the comedy granite dome of the Strand Board of Works' convenience, present altogether a contrast to the Quadrant, the County Fire Office, and the remains of the design of the Circus, that cries aloud for remedy. For our own sakes who have to live with it and endure it, for the sake of the generation now passing away who perpetrated it, for the sake of Regent Street itself as a source of future legitimate satisfaction to all London, and in the interest of modern Architecture herself, this absurd accumulation of mistakes should be courageously handled and removed.—Good traffic ways and fine streets are not antagonistic but cognate in idea, each in the hand of a capable architect combines into noble effects; convenience and beauty are both fundamental alike to the building, the street, and the city. The fear of traffic, and false economy in laying out Shaftesbury Avenue and the resulting sites, have spoilt Piccadilly Circus and dismembered Regent Street, though there are still capabilities in the ruins for renewing something of the completeness of scheme which has been lost, and of providing a fine public space here of which we need no longer be grievously ashamed.

Our survey so far of the formal laying out of a great London street, and of its fate, is not encouraging to propaganda on behalf of this method of treating public spaces. An initial success needs maintaining, as the entire effect may be spoilt by the intrusion of a few unsystematic buildings ; the difficulties decrease when the number of buildings lessens, as in a great public place like Trafalgar Square, the two sides of which are important adjuncts to the dignity of the north side, the main lines and proportions of which should not be varied until the design of the whole is reconsidered.

Whitehall and Parliament Square are decidedly growing in architectural interest and picturesque beauty ; the placing of great formal buildings upon a wide thoroughfare, having a slight general curve and some variation in width, is producing in the former some beautiful effects, while in the latter the charm of the Abbey against the southern light, and of the Houses of Parliament, with St. Margaret's Church, so valuable a foil to its neighbours, increases by contrast with the very different buildings on the northern side ; and there is still a frontage waiting for some able designer to treat it worthily, on the western side behind the Canning Statue.

Parliament Square in many ways is *the* public space of London, and its character has distinctly that peculiar speciality to its locale which we noted before to assert itself so interestingly throughout the capital. The picturesque and the formal combine ; there is a scheme somewhere in it ; but it does not obtrude or trouble the judgment. The principal architectural groups are mediæval and modern Gothic in style, yet the spaciousness and formal direction of the bounding roadways is alien to Gothic ideals. Westminster Bridge just at hand yields further interesting effects on either river front, and varying groups of Embankment buildings ; but we cannot classify or deduce rules for the design of public spaces from the many successes of this scene. London has become an adjective to define the subtle local peculiarity, the freedom of design, and the dominant sense of buildings sitting around the traffic thoroughfares and the river, instead of as elsewhere the roads being compelled between avenues of buildings and the river between walls.

The placing of the finer classical buildings that London possesses, such as St. Paul's Cathedral and the Royal Exchange, upon informal and somewhat random surroundings is worthy of remark. The architectural effect of their surroundings has become so thoroughly united with that of the buildings, that it is difficult to suppose St. Paul's with a formal atrium like St. Peter's, or the heart of the City a square in which the Bank and Royal Exchange duly support the Mansion House.

St. Paul's would not gain by removal from the quite wonderful piling up of buildings and spires which group with it, on its western approach, from Fleet Street through Ludgate Circus; and the Royal Exchange, without its pell-mell of omnibuses and the accidental appearance of the Mansion House or the shy retirement of the Bank into the background, would not be in London at all; though for all this the group might have been spoilt by an inconsiderate treatment of the angle of Cornhill, as St. Paul's Churchyard has not been improved by the trimming and flattening that has taken place on the south-west.

It would appear that the success and character of London street planning depend upon the provision of a fine building upon a site and in surroundings that are not architecturally ideal, the natural tendency to picturesqueness in a crowded city making amends by artistic accidents for the lack of rule and restriction required in the surroundings. South Kensington, however, presents a whole modern estate of great and costly buildings, recently sprung up on roads of magnificent width, without any such totality of effect as could without much difficulty have been obtained, with the gardens on the north, Cromwell Road on the south, and Queen's and Prince's Gates west and east; possibilities are suggested to the mind by these factors which the limited thoroughfares nearer the heart of the City forbid. The buildings include the costly and wonderful Albert Memorial, the Albert Hall, the Imperial Institute, the Natural History and the new Victoria and Albert Museums—which are of the first magnitude—and the two Colleges of Science, the City and Guilds Institute, the College of Music, and others are of impressive size. The estate, however, has been futilely subdivided by two cross roads, practically accommodating only two buildings apiece, and the rest are left to the outskirts, facing the surrounding stucco mansions. No earthly view of this fine accumulation of first-rate modern buildings is practicable; one can only walk around by the area railings of the houses opposite and wonder whether the artistic revivalists who despised Nash and his works deserve any reputation but that of failure, and marvel at the survival of Governments that cannot see.

But here tears are absolutely vain—there is no remedy. The central avenue through the Exhibition grounds, which would have equally accommodated without waste or difficulty all the buildings and left remunerative frontages for more stucco mansions to complete Queen's and Prince's Gates, cannot now be; while the grand frontage to the new Victoria and Albert Museum has yet to be developed by a private syndicate of flat builders. Can there be any hope for modern London after this?

We turn eastwards to the Strand, hearing again a happy echo of London's river genius in its name, and find a great problem courageously originated and handled, but waiting for its fate at the hands of the builders. Full of problems indeed still. Can a street of such a width as 100 feet be fine if the sites and conditions are in character and scale with its breadth on one side of the street only? Here is an initial question complicated by the presence of so satisfactory a building as Somerset House. The difficulties will vanish if the prescription of proportions from Regent Street be adopted here, and such a scale will not only give value to the two lovely churches and to Somerset House, but a healthy freedom for light and air in a central block of London atmosphere. Impracticable financial conditions would appear to prevent this, but some sacrifice, and some completed scheme of fully considered design for the heights of the whole frontage, would almost bring the Strand to a completion which may fill Londoners with justifiable enthusiasm for their rulers, and the world with envy of our opportunity of so combining some living works of the past with those of the present, and which will survive to a future of national pride. London can afford to wait, and if not, to pay for, a scheme of buildings moderate in height at this crucial part of her system of thoroughfares. Upon the desirability of such a reasonable adaptation of the frontage line as will reveal any possible beauties of existing buildings or groups, there should be no question. It will be a needless disappointment to be deprived of a good view of the charming western group of St. Clement Danes, and of much of the remarkable background of the towers at Temple Bar; the quotation of financial cost which treats the value of the sites affected as seriously suffering because the buildings would be pushed back a little without diminution of their frontage scarcely seems to afford sufficient reason for refusing the amendment.

The whole scheme is so great that it needs a strong control of the proportion and design of the buildings to prevent its architectural failure. Of the earnest wish of the County Council to do all that it can to bring this about the Institute has no doubt, and steady insistence upon the importance of this opportunity may direct public attention to the need of strengthening the architectural grip which the Council proposes to exercise over its own sites. The London County Council of the twentieth century should not be behind the Regency of a century ago in its capacity to bring a public work to a dignified conclusion.

The consideration of our subject leads us naturally to look to the exercise of authority as necessary in all streets and public spaces laid out on formal and symmetrical principles for the preservation of the character of the whole, and for the prevention of self-assertive individualism to the detriment of general amenity. The exercise of such authority may be naturally modified and milder where unity of architectural effect does not already exist, or where it is not desirable to attempt it, as is the case in the vast majority of London buildings, and where not already possessed and exercised by the large leasehold estate offices to which London as a whole is indebted for the laying-out of a very large part of the most satisfactory public spaces and districts around its centre. This public artistic control could be most readily afforded by the County Council acting probably through an architectural committee of advice, whose judgment could be allowed to decide upon the cases where the public interest should demand some regularity of treatment or otherwise.

The growth of London has already rendered necessary wider measures for improving existing streets, and for enlarging and perfecting means of through communication which already partially exist. The widening of thoroughfares that have practically become main routes is naturally expensive and difficult, but I may be bold to express the hope that this Institute will throw no difficulty in the path of legislative measures which must issue in the increase of public amenity and health, and that it will not allow the difficult questions of rights of property, connected with frontage lines, to narrow or limit its hearty sympathy with the efforts of the London County Council to widen, open, and improve for all architectural purposes the many streets that should be transformed into dignified thoroughfares. The proposals of the draft bill of this year, now withdrawn, to increase the width of new streets from 40 to 50 feet, and the width between the buildings to 70 feet, is a distinct gain for all lovers of spaciousness and light, while the provision that, when expedient in the public interest, power is taken to widen streets up to 150 feet, is surely conceived with a regard for architectural effect that is of the greatest importance, and which must command the support of every lover of London.

From this still future advance in the application of enlightened principles to the planning of London streets, we will in conclusion remind ourselves that under the auspices of the King a great public space is being planned upon a scale and in a manner unknown to England for many years. As we have seen, London is singularly capable of varied treatment, and lends herself to picturesque accessories of formal design in street architecture, and though we have been compelled owing to the limits of time to restrict our subject, her very wonderful series of parks cannot be neglected in any sum of London's public spaces.

These interests combine in the Processional Road and Queen Victoria Memorial in Saint James's Park which will add another and novel interest to the city. As architects we regard the scheme as a noble one, and the circumstances of affectionate memorial, which mark it as the conclusion of a great era in national life, make us also hope that it will issue in a renewed and enlightened interest in our city and the planning of its public spaces.

DISCUSSION.

The President, Mr. JOHN BELCHER, A.R.A., in the Chair.

MR. MALLOWS FREEMAN, K.C. [*H.A.*] : Mr. President, Ladies, and Gentlemen, I have the very greatest pleasure in moving a vote of thanks to the two gentlemen who have read before us the interesting Papers this evening—Papers which have been, although a labour of love, a labour which has involved a great deal of preparation, and which I think, speaking for myself as a layman, have considerably extended the bounds of knowledge. I could not help thinking that the tasks of the two gentlemen were unduly divided between them. The first gentleman had an exceedingly easy and delightful task. He plunged into the past; he recalled names which themselves are a delight to think of, and called up the pleasant days we have spent in the old cities which he put upon the sheet before you. But the second gentleman had a more difficult task. To take you for a personally conducted tour through Westbourne Grove, Oxford and Cambridge Terrace, with a glance of Whitechapel, Soho, and Poplar, deserves the courage which only a member of this Institute would possess. I congratulate him on the wide and hopeful view which he took until near the last few sentences, for I really began to think that, after all, I was living in a city which was not so bad as we have been led to think. I think he was wise in one way, that while his colleague threw upon the sheet pictures of what he was talking about, the gentleman who read the second Paper abstained from doing so. Eloquence is a far more dazzling method on these occasions than the sheet; and I think that if he could have said, "Here you behold Oxford and Cambridge Terrace, and there the High Street of Whitechapel," even his eloquence would have trembled on his lips. Apart from that, I do most entirely agree with one thing he said—and I think we very often do not make enough of it—and that is, that London has an advantage which perhaps no city in the world has had in a comparable degree, and that is the magnificence of the Thames which flows through it. If I wanted a foreigner to think that we are really a little better than we are generally described to be abroad, I should take him on a steamer up to Westminster Bridge, and onwards from that, pointing to the buildings on the right and the left, and I think he ought to be very favourably impressed. In the future we may have the advantage of leading him to the prow of the boat and pointing to the historical names which are going to be inscribed on the boats, and tell him that this is how the County Council educates us artistically—and I was going to say botanically, but that would not do. The Papers, as it seems to me, divide themselves into two questions: How are you going to regulate individual buildings? and, How are you going to regulate the streets?—because they are really not the same things at all. As was pointed out by Professor Pite, you may have a street of most excellent proportions, and you may be entirely unable to stipulate that builders shall not put up something or other which is incongruous with its surroundings. I think we all deeply sympathise with the observations which he made about what is now taking place in the Quadrant, which is one of the most lamentable things that has happened in this connection in modern times. But how are you going to prevent it? You can only prevent it in one of two ways—either by having all the property State property, which is, I suppose, even in the present day, a somewhat Utopian idea; or, that you shall have such building regulations as will oblige people to keep their buildings to a decent height. You cannot do more than that. You cannot possibly prescribe

—and I am sure that this Institute would be the first to resent it—what the design of the new buildings is going to be, and it would not be a desirable thing if you could. Then, again, take the question of the streets; I suppose nowadays the first thing which comes upon everybody who is laying out streets is the desirability to get quick and rapid transit, and that most detestable of modern institutions, the tramway, is very largely responsible for it. Because, whenever you get a tramway scheme, you always find a large portion of the scheme is for widening streets, taking off corners, and making everything in one perfectly straight line, which is one of the most depressing things in this world. Another question referred to was that of the bridges. There, again, what are you to do? Who are responsible for allowing those bridges to go up? Ultimately Parliament is responsible. Every Railway Bill has to come before a Committee of Parliament if anybody takes the trouble to oppose it. I recollect that at the time the Charing Cross Bridge was being enlarged and extended, I ventured, in a mild and hesitating way, on behalf of the Metropolitan Board, to suggest that the railway company should be required to spend a little more money in making it a decent and ornamental structure. I noticed the Chairman seemed very much puzzled at what I was talking about, and at last he said, "Are you asking us to go into an æsthetic question?" I said, "Yes, I was," and he said in reply, "You need not go any further than that; let us go on to the next business." That was not encouraging. I do not know what it is, but there seems to be something in the railway mind which is incapable of understanding what a bridge ought to be. Some time ago I was acting for a railway company which wished to construct a line through a park which had a very beautiful drive to the mansion house, and we were very desirous of helping the owner in every possible way we could; but in an evil hour the people who were acting for him, and who did not know the railway, put a clause into the Bill that they should put up an ornamental bridge, and that they should submit designs for it. Sir, they submitted designs, and that unfortunate man nearly committed suicide! The result, I believe, was that he offered a substantial sum to the railway not to put up an ornamental bridge, because their idea of an ornamental bridge was something twice as horrible as the ordinary bridge they would have put up. It occurs to me that there is one practical way in which we may consider this matter. I think it is very important and interesting to know that exactly the same state of things which we deplore here is equally taking place in every large Continental city which one visits. If you go to any city on the Continent, say Milan, or Florence, or Venice, or anywhere else, you see this—the most perfect and beautiful examples of street architecture and street arrangement in the old town, and a fringe of buildings round that, where the town is supposed to be developing, which are too frightful for words. Take, for instance, a place like Milan, with its barracks all round, where the people are lodged in these endless flats, and then the perfectly straight streets with arcades which are running through them. There is exactly the same thing taking place there. Take, for instance, the very bit in Florence which was referred to by the reader of the first Paper: within a few hundred yards of the most exquisite square that ever was created they have pulled down the old Fish Market, which was an equally beautiful place, and erected a thing which is worse than anything we have got in London, not merely in shape, but in decoration, in building, and in everything else. One is led to ask, Why is this epidemic of vulgarity and hideousness going on all over the world at the present time? I think it is largely for this reason. If you go back and see what the constitution of the people who had the government of the cities in those days was, you find that the men of light and leading, the great architects, the great builders, the great painters of the day, were men who gave the advantage of their knowledge for the benefit of the community at large. You find that when a great church or anything else was built in those old towns, in nine cases out of ten the man who did that work was an intimate and vital part of the ruling power of the city. He was the leader of the guild; he often answered to some such quality as a mayor; he was a member, at any rate, of the town council, and he gave those people the advantage and assistance which his great knowledge authorised him to give; and they listened to him. But nowadays is it not too much the fault that those who have light and learning confine themselves to outside criticism? People are averse to the rough-and-tumble of municipal life, and the result is that people are put upon these authorities, be they councils or be they local authorities, or whatever they may be, who have not, whether they wish it or not, the instruction and the knowledge to enable them to carry these things out. What I would suggest is that all these learned bodies should pass a sort of self-denying ordinance, and that they should take it in rotation to cast lots who should be decimated, so to speak; that a certain number of them should go on to these Borough Councils and County Councils (I am speaking perfectly seriously) and these other bodies, and that they should use their influence, and by politely talking with these people try to bring them into a better frame of mind, which I am sure often proceeds from ignorance and from a lack of true knowledge. You know if you have been trying, according to your lights, however ignorant they may be, to get what you think is the best thing for the town, it does not put you in a particularly good humour to find a flaming letter in the *Standard* or the *Spectator* denouncing you as a perfect pickpocket and idiot, written by gentlemen with all sorts of letters after their names, which are highly attractive to the persons who write the letters, but which do not please the men who read them. Instead of bringing these outside bombshells to bear upon these unfortunate bodies, if you would join them and softly lead them on into the better way, I still think we might have a return to the condition of the first Paper, and a little less of that described in the second.

Mr. WALTER CRANE: I have very much pleasure in seconding the vote of thanks to the distinguished readers of the Papers, Mr. Simpson and Professor Pite. I can but say that I have been very deeply interested in the subject of the Papers; and although to deal with such a subject after such authorities would need great preparation —not to say being duly qualified as an architect— I can only plead as an artist that I have been extremely interested in the planning of streets and the aspect which modern changes have given them. I came to hear Mr. Simpson's Paper rather with the disposition that we should, as a general rule, be on sound principles by designing our squares or public places on regular and definite if geometrical plans; but I feel now a little shaken in that view owing to the number of beautiful examples he has shown to the contrary. It seems to me that the actual shape of the square or Platz must a little depend on the character of the town and buildings which form its architectural framing. It struck me in some of the plans that possibly the original line taken by the streets might have arisen, perhaps, from the primitive pathway, like the old High Street in some of our villages, which nearly always has a beautiful line—in fact, any footpath has a good line. Take, for instance, my own neighbourhood of Kensington, where the little High Street until recently took an extremely beautiful and picturesque line (probably originally the track of the pack-horses); and although the buildings were of an exceedingly humble sort of character, as a rule it was a pleasant street. Modern ideas have now broken in, and we have enormous buildings on one side, of every species of modern architecture—or building mechanism—with every excess in terra-cotta and plate glass, and so forth, and the line of the street is also destroyed. That is the principle we have gone on throughout London. We are simply making avenues for traffic; and as traffic means trade, and as from the highest to the lowest in the country trade appears to be considered as the one object of life, I suppose we see the natural results. You clear only for traffic; you accept the shortest way to your immediate purpose, and let the future take care of itself. The architectural results are only too obvious. I rather envy Professor Pite's optimistic mood, while I fully recognise the largeness of his ideas and wish more power to him; and although he was on perfectly safe ground as a rule in his interesting excursion round London, he carefully avoided the suburbs. I think if there is anything that is destructive, not only to the beauty of London but to that of all our towns, it is the modern suburbs. We could manage to hold our heads up pretty well with our buildings and places in London; but what about the suburbs and the approaches to London? For, after all, the suburbs are much the biggest part of London now. I often wonder what the foreigner thinks when he is coming into London, and in passing through our suburbs sees the terrible squalor of the streets and the mean houses that everywhere meet the eye. Squalor alternating with pretentiousness, one might say, has really destroyed the outskirts of London, as it has destroyed Oxford and many of the Continental cities in the same way. Of course we cannot go back. I think it was Evelyn who recommended in the expansion of London that they should preserve the original city by starting to build new London after the Great Fire not nearer than within a circuit of ten miles, and it would have been a very good thing if his advice had been taken; it would have preserved old London—that little gem from the Middle Ages which the old drawings show. Then, again, I fancy the whole interest of the present world is concentrated upon moving fast, and so it becomes a question of whether people in the future will stop long enough in the street to see what it is like, or have any time for architectural reflections. The thing is to get through it as quickly as possible, and therefore a straight street is obviously useful. From the traffic point of view, however, Mr. Simpson has shown us that there are considerable risks of collisions on the modern plan. With regard to South Kensington I am rather impressed with the street of which the Imperial Institute forms one side, and the College of Science the other. It is from the modern point of view one of the finest things we have got. It is practically the design of two of our ablest architects, and the architect on one side has shown consideration for the architect on the other by repeating two of his features in order to carry out a sort of re-echo and form a balance which is very seldom met with. The whole question of the expansion of London is so serious, with the old city rapidly disappearing and new streets and new buildings being erected almost before one knows it, that I wonder a great and powerful Institute like this does not have a permanent Committee sitting to deal with the questions of planning which have been so ably dealt with to-night. Really, Mr. Freeman hit the nail on the head when he pointed out the true and perhaps only remedy. There is one artist on the County Council, and the only way to remedy these matters is to get representatives of architecture upon these bodies, and fight the complex question of street improvement out. I do not think there is anything else to be done, unless, indeed, our municipal council would agree to appoint advisory councils on art and architecture. I am bound to say I think the tendency of the time is entirely against architectural beauty, and we shall probably go on as we are going on at present pending changes in our economic and social system; and if we do get any success it will come about in the way that we have got most of our successes in the past—by accident.

Captain F. HEMPHILL, of the L.C.C. Improvements Committee: I think it might be of some use if this important gathering of architects were to understand the views with which the County Council approached these subjects. The two Papers have been most delightful and instructive, and as a member of the County Council I am very glad to have had the opportunity of coming here and listening to them. I feel that we have rather a difficult task on the County Council, because we have to consider the public, and the public unfortunately are not always struck with that feeling for art which so wisely dominates this Institute. The public are inclined to call us to account for the amount of money we spend; but in everything we have done we have not claimed to possess any knowledge of art. We have endeavoured to get assistance and advice from those who are able to advise us, and it may be remembered in regard to the new thoroughfare from Holborn to the Strand that we considered the question very carefully and consulted very eminent architects about it. A remark has been made about the widening of the Strand, and the County Council has been condemned for not putting the frontage back. As a member of the Improvements Committee and other committees connected with the subject, I can say that we all felt that the putting back of the frontage would be most desirable; but the difficulty is that the cost would be £300,000, and we felt that we were not justified in spending so large a sum. With regard to keeping down the heights of the buildings, of course it would be delightful to make the new buildings after the style of Somerset House and in agreement with the two fine churches there; but we have to get back a very large sum of money and to let the land to the best advantage. But what we have done is this: we have determined that no building shall be erected unless built with satisfactory material and according to designs which shall be approved. I think, at all events with regard to the buildings that have been put up—*e.g.* the new Gaiety buildings and the hotel alongside—acting under the advice of one of the most eminent architects in the country—because we have rejected two or three plans that were submitted, and asked an architect to assist us with regard to this—the result will not, when the whole thing is finished, be entirely unsuccessful. I might also say that we sympathise with the gentleman who expressed a great objection to terra-cotta, because, as far as we on the Improvements Committee are concerned, if we possibly can stop anything but plain brick and stone, we endeavour our best to do it. We may fail in that, but it is not from any want of desire for buildings in an artistic sense. But I think that this Institute could afford the Council very valuable assistance, which we should welcome very much, if some suggestion could be carried out in regard to an Architectural Committee. Sir William Richmond put down a notice to that effect, but there were difficulties in the method proposed. I do think, however, that the Council would heartily welcome any assistance which would help it. We do not pretend to be entirely artistic or entirely scientific. We did not claim that we knew everything in framing the Building Bill, with which I was rather largely connected, and a portion of which has been dropped for the present. On the contrary, we went everywhere and asked for assistance and advice, and I think the Council owes a very deep debt of gratitude to this Institute for the very valuable suggestions it offered, which we very carefully considered, and from which we derived very great assistance. We hope, further, that when we ask again in the future, as we shall do at a very early date, for their co-operation, we may receive that co-operation in the spirit with which we shall invite them to co-operate. With regard to members of this Institute coming on the County Council, I can only say that if they can face successfully the ordeal of an election—which is not altogether an unmixed joy, nor is it a position of unmixed joy to represent a constituency—if they will sacrifice themselves so far as to come on the Council, we who are members will heartily welcome them, and be delighted to have their assistance. And I imagine that they could do no greater service to London than by so doing. I do not think I need speak on the subjects of the Papers; but I do feel, after seeing the pictures of ancient places shown on the screen, some doubt as to whether the conditions there would be suited to modern requirements. While we admire very much the beautiful architecture created in those places, the conditions of the future will be somewhat different from those of the past; and it is to the conditions of the future that I think the architect in London has to look, while embodying if he can the beautiful traditions of the part.

Mr. H. V. LANCHESTER [*A.*]: In supporting the vote of thanks I must say that I feel—and I daresay many of you feel—that we have rarely had the opportunity of hearing Papers so provocative of thought as the Papers we have had to-night. I came to the meeting with the idea that I should be able to pick holes here and there, but I soon saw that that was an altogether mean way of looking at things, and that the vistas that were opened up, both by Mr. Simpson and Professor Pite, afforded possibilities of thought on the subject that were quite outside one's range at the start. It strikes one on hearing these two Papers how much more there is of the subject that has not been dealt with. For instance, Professor Pite only just touched on the question of landscape, and then went away from it. That question, it seems to me, in conjunction with the question of the suburbs, to which Mr. Walter Crane referred, brings into one's mind so much in which we fail where we ought to do very much better. In dealing with the extensions of our cities we rarely take into consideration the natural forms of the hills and the landscape that we have to deal with. I think it was the late George Gissing who referred to the suburban houses "creeping like a disease over the country." That always struck me as a very telling way of putting it. I must say I disagree with one of the speakers who said that Continental towns are going as badly as our own. I do not think so. They do take care that the roads shall, in some way, conform to the contours of the hills, and that the buildings shall really stand either against or on the hills, and not crawl up, step by step, roof over roof, until they get to the top, and then crawl ignominiously down again to the other side; and, therefore, that the buildings stand level and help the landscape, rather than injure it. There is another point worth considering, viz. the gradation from the city into the country. Of course we are always shifting our boundaries; the city is always extending. The city itself, the centre, may be at times (I do not say always) absolutely formal and apparently permanent; but when you get right into the country you welcome the decay and picturesque effects that nature produces. How are you to bring yourself from the rigid and permanent to the picturesque, the beauties of decay and foliage, and the informality of nature? That is a big problem, and it would make the subject for a good Paper to deal with the gradual and natural extension from the heart of the city to the absolutely natural beauties of the country. Professor Pite dealt with a side issue, which I think it would be well for us to take to heart—namely, that we should consider carefully the peculiarities of its position before we design a building. I am afraid that too often we do not consider the exact view of a building in a town; we are pretty good at it in the country, but in a town we are too apt not to consider the various vistas we can get of a building up this and that street before we decide on the exact form of its design. With regard to the impossibility of maintaining the elevation, or the front of a building when it is an important factor in the design of a street, that problem has been solved in the Place de l'Opéra at Paris. There the design of the buildings is absolutely settled, and it cannot, without an Act of Parliament, be altered in any way. I do not see why we cannot do the same thing in Regent Street. Another speaker referred to the possibility of gentlemen of light and learning getting on the county councils and other municipal bodies. It is very complimentary to our Institute to be included, and I hope we appreciate it; but I must say I do not think it is likely that members of an artistic profession will be sufficiently popular with the general public to get elected. I think they ought to be co-opted on to such bodies.

The PRESIDENT: There have been some very interesting points raised this evening. One of these Mr. Simpson has mentioned—viz. that foreign Governments in dealing with the laying-out of public places are guided by artists; that committees, consisting of artists, sculptors, and painters, are invariably employed, and in fact control the various alterations which they have initiated. Another very important matter is that there is a good deal of literary contribution for the guidance and help of the municipal authorities abroad; an example, I think, which we might well follow in this country. As Mr. Simpson pointed out, the Signoria of Florence took many years to form, and many generations of great artists to plan; yet it would be possible for one engineer in less than a week to destroy all that! Mr. Simpson spoke of some of the sites of the open spaces he has shown us this evening as probably being formed to suit the buildings already there. Might we not also infer that the result may be attributed to the architect who has put up a building suitable to that particular site; that it was, in fact, the building that was put up afterwards to suit the site, not the site that was formed for the building? There is no doubt that improvements could be made in several sites in this country by opening up and developing them, by widening out certain places; but this should only be done under the guidance and control of an Artistic Committee. No doubt many of these places were market-places originally, and the centres were left open for the market meetings. We have many such places in this country, and very fine some of them are—Norwich, for instance, and the Cambridge market-place, with its fountain at the side. Professor Pite has dealt more particularly with London, and has mentioned many open spaces that exist in the various boroughs around. In many of the despised suburbs where these little spaces are found they could be developed and opened up by the municipal authorities; and it is important that these authorities should have in their possession some papers and instructions as to the methods of laying out sites. No doubt, as he has pointed out, they would vie with one another, and endeavour to make their borough superior to its neighbours. In that direction a great improvement can be brought about by municipal bodies. As Mr.

Lanchester has hinted, we must deal with cities as we do with gardens; that is to say, if London is a forest or wilderness of houses, there must be certain central places near our important buildings which should be more formally treated, like the formal garden near the house. But it would be a mistake to develop the idea too freely. I think that was why formal gardens failed: they were developed to such an extent that people came to despise them. Their avenues were extended for miles, and the whole country was brought into subservience and made a huge garden, whereas it would have been much better to keep to the more formal methods near the house only. And so in the city. Our principal State buildings, museums, and other places should be treated with formal surroundings and dignified approaches. In that way the outskirts and the surrounding buildings might go off into the forest and wilderness, and be allowed to form a good and useful contrast to the more formal operations, which should not be extended to any great distance. I think such cities as Bath, for instance, indicate what might be done in the way of formally treating small portions, not too extended, just as our attention has been drawn to Portland Place and Regent Street, where everything is kept to a sort of uniform scale and proper balance. As some remarks have been made with regard to Regent Street and Piccadilly Circus, I think I may say, without betraying any confidence, that the matter is under consideration in official circles, and it is very unlikely that such mistakes and blunders as have already occurred in Regent Street will occur again. It has been determined, I believe, that there shall be a proper design which shall be adhered to; that the beautiful line of the Quadrant shall be retained, and that whatever buildings are put up will be upon a recognised scheme, and the conditions be rigidly watched, and carried out under proper supervision. Piccadilly Circus is also under consideration, and there is a possibility that, in due time, of course—these things cannot be done immediately—it will be satisfactorily planned and eventually carried out.

Mr. JOHN W. SIMPSON, in replying, said: The remarks of Mr. Freeman and of Mr. Walter Crane were such as to give ground for considerable thought. The proposal that the architects and artists who are interested in these matters should take seats upon the county councils and borough councils, and the various bodies who have to deal with such matters, is a very gratifying one, except, perhaps, to the artists concerned; but I do not think, after all, that is the proper solution of the problem. As far as this Institute is concerned, we have already many of our members sitting on borough councils and similar bodies. The trouble that arises is generally this, that artistic schemes and conceptions of all kinds are promulgated by the authorities before the artist hears about them; and when he is invited to deal with them the conditions are so rigidly laid down, and so formally fixed, that his scope is very limited indeed. If the bodies who are dealing with public improvements would remember that absolutely the first necessity for obtaining a good plan or a good scheme is to get a good architect, I think the schemes would be very much more successful than they are. I was very much struck by Mr. Walter Crane's remarks about South Kensington. He appreciates the arrangement of the Imperial Institute, the Royal College of Science, and the Natural History Museum. Well, I do not. I have often thought what an opportunity has been missed there. If the Imperial Institute had been left quite properly where it is now, and the Natural History Museum had, instead of running parallel to it, been placed at right angles to it—say at the west side—and the Royal College of Science, instead of running parallel had been placed parallel to the east side against Exhibition Road, what a magnificent *place* we should have had in the centre, with the Imperial Institute at the end of these two magnificent buildings, one on each side, and a road running across the end of the *place*! It seems to me that a great opportunity has been missed there. It has been treated merely as a suburban building site. I am sorry to have to agree with Professor Pite. One of the great pleasures that I promised myself this evening was that Mr. Pite's Paper would probably take an entirely opposite line to mine, and that I should have had the pleasure of discussing it afterwards with him; but unfortunately he has gone very much upon the same lines as I have myself—which is very gratifying to me. His suggestion that the river is an excellent vantage ground for our statues and monuments and public buildings is to me an exceedingly delightful one. It seems to me that as we have there such a centre point as the Forum in the ancient cities gave for the public buildings of such cities—that as we have a river naturally running through it, let us display our buildings and monuments on that site. We cannot have them effective if we have them generally and loosely distributed all over the city. They must be grouped if they are going to be fine and get their full effect.

Professor BERESFORD PITE, in responding to the vote of thanks, said: I should like to say a word with regard to the lantern slides, that, as it has been well remarked, out of the Royal Academy in every year you can make a more satisfactory exhibition than was ever produced at the Grosvenor Gallery or New Gallery by a process of further selection; so I believe that out of London, if you were to take the buildings, you would get a more interesting and charming selection of buildings than you could get out of any other foreign capital. When I see packets of postcards and illustrated photographic books exhibited in the shop windows, the idea of how charming those views are is confirmed. If we can get rid of the old Philistinic idea that because a thing is in London it is not worth looking at, and that because London is not Rome or Paris or Venice, London is an uninteresting place, we shall be going a long way towards removing the not cheery pessimism with which all of us regard it. With reference to Regent Street, the announcement that you have made, Sir, this evening, is one of very great importance, and one which I am sure will give a great deal of satisfaction to this Institute, namely, the statement that the importance of not sacrificing the beauties of the Quadrant is being considered, and also the ray of hope you gave with regard to the peccadilloes of Piccadilly. With regard to the Strand improvements I am sure the difficulties of the County Council are understood here, and that the efforts they have made are cordially appreciated; and that especially in those Gaiety blocks we have to be thankful for the mercy with which we have been treated. But it is only, I venture to think, because we have not refrained from persistently drawing attention to the problem. Let us continue to draw attention, lest Somerset House and lest the two churches be overtowered by a continuation of that Gaiety block. The Gaiety block is very fine and dignified by itself. But it will not be so to the churches when they are overshadowed by such a height. Let us hammer at this until we are successful in getting our requirements. As to the £300,000, we do not quite understand it; we do not quite see, if the frontage remains the same, how that enormous sum of money can be lost. The Exchequer officials, I think, are carrying too much weight with artistic members of the County Council on that subject. I hope that the latter will stiffen their backs. With regard to the suburbs, our suburbs have earned their name because people who come to London never see them except from a railway—that is the sheer English of it. With the revival of motor cars, the dismissal of tramlines in favour of motor omnibuses and the railway, the suburbs will have a little chance. But the suburbs are not so bad after all; take, for instance, Stoke Newington Green; or after you have gone through the squalor of Kingsland Road and get on to Stamford Hill at the far end, or the charming spaces down by Hackney Marshes, which are altogether interesting and jolly. If you only know Stratford by the smells from the Great Eastern Railway, you misjudge the locality in that direction. The *place* in front of Stratford Town Hall and its church is delightfully fine, and there is the old parish church at the back. If you look for the interest, the interest is there. If you make up your mind that you are going to be uninterested you are likely to be disappointed; but I hope your disappointment has been alleviated to-night.

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CHRONICLE.

Public Works and Municipal Officials.

The Times of the 6th inst. devotes two columns to a special article entitled "Architects and Public Works." The writer has taken for his text the memorial addressed by the Council of the Institute last November to the various County Councils, Municipal Councils, and District Councils of the United Kingdom with reference to the growing practice of municipal authorities entrusting architectural work to their paid officials. The case is put temperately enough for the architects; but, as the writer states, when the whole body of architects of Great Britain who acknowledge the authority of the Royal Institute of British Architects, and of its Allied Societies—representing about 3,500 members—send forth their protest against the prevailing practice, it may be taken that there is something serious amiss, and that the situation calls for careful consideration. Summarising the main points of the grievance, the writer says that "owing to the defective and ill-judged systems in vogue, bad or uninteresting architecture is continually being produced, the public taste is lowered, economy is not effected, men untrained as architects are constantly employed for public works, or, when salaried official architects are engaged, they are prevented by the nature of their employment from devoting proper attention to the buildings they are charged to erect. The dignity of the profession is assailed, and the well-being of non-official architects practising in the towns and cities of the United Kingdom is seriously affected." It is not an unreasonable demand that the business of a department should be restricted to its proper functions—that is to say, to the management of corporation property and examination of and report on building plans—so as to ensure due observance of the by-laws. The concluding sentences of the article show that the writer fully endorses the architects' protest. "It may be accepted," he says, "that the prevailing system and lack of system is injuring, and will continue to injure, the architectural profession, and it will exclude the class of men most required to maintain and raise the standard of architectural achievement. It does not produce economical work, it cannot produce artistic work, and it is subversive of the interests of the individual, from whom the new thing and the original thing is invariably derived."

The Ownership of Drawings Case.

The Court of Appeal have upheld Mr. Justice Ridley's decision in *Gibson* v. *Pease* that an architect has no property in the plans he has prepared for a building, and have affirmed that they belong to the building owner. The Court examined the case of *Ebdy* v. *McGowan*, concluded that it was good law, and decided to follow it. The Master of the Rolls, in delivering judgment, said that the principle on which counsel relied in support of the alleged right of an architect to retain plans was that the architect's contract was not a contract for the sale of a chattel, but for work and labour, and that the contract was performed when he had superintended the building of the house. His Lordship proceeded to inquire whether that principle was involved in *Ebdy* v. *McGowan*? There the plaintiff was an architect who had been employed by the defendant to prepare plans and get tenders for a vicarage. The payment was to be 5 per cent. on money expended if the vicarage was completed; if tenders were obtained and work not commenced, 3 per cent. on the estimated cost; if no invitations for tenders issued, 2½ per cent. The plans were prepared, but the defendant changed his mind and declined to proceed, and wrote to the plaintiff offering to pay, and asking for the plans. The architect declined to give up the plans, but sued for payment, and set up a custom among architects to retain their plans if the work was not proceeded with. It was held by the Court of Exchequer that such custom, even if proved, would be unreasonable, and that the defendant need not pay for the plans unless he got them. The Master of the Rolls said that in his opinion the principle relied on by counsel for the defendant was just as much involved in that case as in this. If the custom had been justified in that case, it must have been justified on the same contention as that on which it was sought to justify it here. If the custom was bad in one case it must be equally bad in the other. The decision seemed to him to be good law, and he thought they ought to follow it.—The other Judges of the Court were of the same opinion, and the appeal was dismissed.

Past Presidents' Portraits.

The presentation of the portrait of Sir William Emerson, which has been painted by Mr. J. J. Shannon, R.A. [*H.A.*], will shortly take place. The portrait of Sir Aston Webb, R.A., is to be painted by Mr. Solomon J. Solomon, A.R.A. [*H.A.*].

London Building Acts Amendment.

The London County Council propose to introduce an Amendment Bill in the Session of 1906. Copies of the Bill, prepared by the L.C.C. Parliamentary Committee, showing the effect of the London Building Acts (Amendment) Bill, 1905, on the existing Acts are to be sent by the L.C.C. to the Corporation of the City of London, the councils of the metropolitan boroughs, and the various professional and other bodies concerned, with an intimation that the L.C.C. will be glad to be acquainted before 10th June 1905 with any observations they may make on the suggested amendments to the Acts.

The R.I.B.A. Annual Dinner.

The Annual Dinner of the Institute will take place this year on Friday, the 13th October, at Newcastle, under the auspices of the Northern Architectural Association. A two or three days' visit of the Institute on the occasion is in contemplation.

The French Archæological Congress at Beauvais.

The Société Française d'Archéologie announce that the annual congress (the 72nd) held under their auspices will take place this year at Beauvais (Oise) from the 20th to the 28th June. The programme, a copy of which has been sent to the Institute, is a very full and varied one, the subjects to be brought forward ranging from the remains of prehistoric Gaul in the Beauvais country down to the arts and crafts of that region in the late Mediæval period. The following are a few of the architectural items:—

> Quelles sont les églises de la région qu'on peut faire remonter au XI^{e} siècle?
>
> Étudier les origines de la voûte d'ogives et de l'architecture gothique dans le bassin de l'Oise, la sculpture et les clochers du XII^{e} siècle.—Histoire archéologique de la cathédrale de Senlis.—Monographie de l'église de Saint-Leu-d'Esserent.
>
> Étudier l'école gothique de l'Ile-de-France au XIII^{e} siècle, la flore monumentale, l'origine des arcs-boutants et leur structure au chevet de la cathédrale de Beauvais.—Présenter la monographie et les relevés d'une église rurale romane ou gothique.
>
> Dégager les caractères de l'architecture religieuse en Picardie au XVI^{e} siècle en montrant la persistance du style gothique flamboyant.
>
> Décrire les châteaux forts de la région, relever leur plan et reconstituer les enceintes des villes et des bourgs au moyen âge.—Monographie des châteaux de Gisors, de Senlis, de Montépilloy et de Vez.

Besides places in the immediate neighbourhood, excursions have been arranged by rail or road to the following: Marissel, Bury, and Cambronne; Gisors and Saint-Gerner; Senlis; Saint-Leu-d'Esserent; Vez and Morienval; Ourscamp and Noyon. The subscription to the Congress is 15 francs. Each subscriber receives a volume of photogravures and plates, with the guides to the excursions, reports of meetings, papers, &c. The Congress banquet will be held at the Hôtel d'Angleterre, Beauvais, on the 25th June; and the Municipal Council will hold a reception of subscribers at the Hôtel de Ville on the following day. Subscribers to the Congress have the privilege of travelling on the French lines to and from Beauvais at half the ordinary fares. Subscription forms and programmes, on which are given particulars of the hotels in the district and their charges, may be obtained from the Secretary of the Société, M. Raymond Chevallier, Bois-de-Lihus, par Estrées-Saint-Denis (Oise). To secure the reduced fare application must be made for tickets not later than 20th May.

The late Frederick S. Waller [*R.F.*].

Frederick Sandham Waller, who died on the 22nd ult. at the age of eighty-two years, was elected a Fellow of the Institute in 1856, and was placed on the list of Retired Fellows in 1900. He was at one time in partnership with the late Mr. Thomas Fuljames, of Gloucester. For many years he had charge of Gloucester Cathedral, and he was associated with the late Sir Gilbert Scott and Mr. John Pearson, R.A., on the restorations carried out from time to time. He was also largely associated with church restoration in the diocese and elsewhere. At the meeting of the Institute last Monday, on the motion of the Hon. Secretary, a vote of condolence with the relatives of the deceased was passed.

REINFORCED CONCRETE FLOORS.

35 Lincoln's Inn Fields, 5th April 1905.

To the Editor, JOURNAL R.I.B.A.

SIR,—I desire to call attention to a matter of considerable interest to those of us in whose practice the construction of fire-proof floors or the use of reinforced concrete are matters of frequent occurrence.

If we desire to use any but the simplest and most old-fashioned form of floor, it is usual to entrust the work to a specialist in reinforced concrete construction, who makes his own calculation for strength and fixes the necessary thicknesses of floors, width and depth of beams, amount of metal reinforcement, &c.

He of course gives an undertaking that his floors or pillars or walls will carry safely the specified loads; but the final responsibility in case of failure lies with the architect who employed him, and it would be but a poor defence to point to the guarantee if no care had been exercised to test the accuracy of the expert's calculations.

Now there are many methods of calculating the strength of reinforced concrete structures, differing greatly from each other in the results.

In this country, I am sorry to say, the experts, generally speaking, have very little scientific knowledge or training, and as few experiments are made or published here that little is not much supplemented by empirical rules based on actual results.

In America and on the continent of Europe there are many experimenters constantly employed in research whose results are studied and utilised by working constructors. But the need there of a method generally accepted as neither too rash nor too cautious has made itself felt. The Prussian Government has issued a series of regulations dealing with the materials and preparation of the concrete, and fixing simple rules for the proportioning of the various parts, together with clearly expressed examples of the use of these rules. A committee of architects and engineers in Austria have prepared a similar document; and in America a committee of the Institution of Civil Engineers in conjunction with various other bodies are at work, I believe, on the same project.

I wish to suggest to the Council and to my fellow members the advisability of this Institute (possibly in conjunction with the Institution of Civil Engineers) appointing a special committee to prepare a standard specification for reinforced concrete work, and rules illustrated by examples for proportioning the various parts of such structures.

Reinforced concrete is coming rapidly into use, and when we get beams of that material up to 50 feet span, carrying heavy weights, no light responsibility rests on the architect.

At present there are no rules which are generally accepted or which possess any special sanction and authority, and I am convinced that such a document as I suggest this Institute should prepare would be of exceeding value to all who use the new material and methods.—I am, Sir, your obedient servant,

WILLIAM DUNN [*F.*].

REVIEWS.

PLANNING.

The Principles of Planning: an Analytical Treatise for the use of Architects and others. By Percy L. Marks. Illustrated by 150 *Plans of various Types of Buildings, chiefly of executed Works by eminent modern Architects. Second Edition, revised and enlarged.* 8o. *Lond.* 1905. *Price* 8s. 6*d. net.* [*B. T. Batsford,* 94 *High Holborn, W.C.*]

Mr. Marks's book is on an extremely interesting subject, and he has approached it with evident enthusiasm. He is best when dealing with small buildings; but this is only natural when the size of the book is taken into account. It is manifestly impossible to treat adequately a number of large and complex buildings of different kinds, together with smaller ones, in 200 pages of letterpress. Some subjects it would have been better perhaps to have omitted altogether. Two half-pages, for instance, given to Government offices and Parliament Houses cannot contain more than very general information. Other subjects might well have been treated more in detail, and portions of buildings given rather than complete plans. This has been done in a few instances. Thus, an illustration is given of the plan of one of the wards in the Infirmary, Cardiff, together with a plan to a smaller scale of the whole building.

Mr. Marks deals very fully with plans of houses of medium size, and presents many interesting suggestions for positions of doors, windows, fireplaces, &c. in rooms of different shapes. He also gives a list of sizes for various rooms. This is always a difficult thing to do, as circumstances alter cases so tremendously. Some of the minimum sizes given are decidedly misleading. It may be possible to get all the furniture necessary into a kitchen 11 by 10 feet; but such space provides uncommonly little room for the servants, who have to work, and probably live, there. A *best* bedroom, 13 by 11 feet, is a very poor "best"; and 9 by 8 feet for "other" bedrooms is uncomfortably small. Again, 21 by 18 feet is a bad size to suggest as a minimum for a billiard-room. It will not take a full-size table (and nobody wants to play on a three-quarter table), whereas 22 by 16 will take one at a pinch, and yet is a smaller room.

The disadvantage of a book devoted exclusively to planning is that in many examples one feels the need of explanatory sections. In some instances, no doubt, sections are not necessary, but in others a plan has little value without them; and although sections would have increased the size of the book, they would also have considerably increased its value.

The new edition is, in many respects, a great advance on the first. The number of plates is nearly doubled, scales are added where formerly there were none, and the new plans given include those of the Gaiety Theatre, Lord Windsor's town house, the Colchester Town Hall, Carlton Hotel, &c. The table of memoranda appended contains a considerable amount of information on many points of interest. The arrangement followed throughout by which the general requirements to be observed in the planning of buildings of different kinds are given first as headings is an excellent one, and these introductory remarks, together with the plans, form the most valuable part of Mr. Marks's book.—F. M. Simpson.

PLENUM VENTILATION.

The Plenum or Propulsion System of Heating and Ventilation. By Harold Griffiths, A.R.I.B.A., F.S.I., A.M.I.C.E., &c. 8*vo.* 4s. 6*d. net.* [*Simpkin, Marshall, & Co.,* 8 *Craig's Court, S.W.*]

Having regard to the conflicting views which exist on this important subject, the appearance of a handy treatise is acceptable and opportune. Although the work of a partisan, its claims are dealt with in a moderate way.

Ventilation is defined as "change of atmosphere," and its *sine qua non* as being "without draughts, and filtered." Natural ventilation is first briefly described, and the conservatism of this generation in its adherence to the open fire and fenestral system commented on, and a list of its defects is given. This conservatism, of course, applies to its use in apartments, and chiefly in England; while the expediency of a mechanical system like plenum more especially affects public buildings, and is of universal interest. Manifestly, as the author puts it, "the busy architect has not the time to study the collateral sciences which are bound up in the subject," notwithstanding the general belief that he must intuitively be familiar with the circle of the sciences. The author tells us his aim is "to bridge the gap between expert knowledge and no knowledge at all."

"Plenum ventilation" is described as the propelling by means of mechanical power screened and humidified air (heated when necessary) along horizontal ducts through vertical flues, discharging it into rooms, circulating it throughout the same, and passing it through extract ventilators to the open air.

In the fourteen chapters into which the ninety-four pages of text are divided we get suggestions as to the best positions for engine, pumps, boilers, propellers, &c., and a comparison of the several methods of propulsion, viz. steam, gas, and electricity, with the proper rate of speed. The air purifiers—canvas, coke, fibre (fixed and revolving), cylindrical and mist screens—are briefly compared. Ducts and flues, heating batteries, changes of air and velocities, dust, leakages, and cost are discussed. An estimate for a complete installation for a building to accommodate 1,200 workpeople is given, the first cost of which comes out admittedly at double what a hot-water apparatus on the natural system would do, but whose maintenance is put at a ratio of about 5 to 3. The luxury of fresh warm air, however, is claimed as the *quid pro quo* of the extra cost.

On the very vital point of advisability of a duplicate plant the author says it is not necessary if the system is well designed, unless working night and day, when he considers it absolutely necessary. No actual instances are given of existing buildings with the first cost and that of upkeep. Advertisement of any particular contractor is very properly avoided. There are casual references *passim* to a few public buildings, not always commendatory of the details, which are of the utmost importance, as they involve the first principles of ventilation. At all events, we are told, a counsel of perfection must not be looked for.

The author's model specification describes and fixes the positions of intake, velocity of delivery, boilers, engine, motor air purifiers, humidifiers, propellers, ducts, flues, air inlets, extracts, heating batteries, &c. A chapter on testing follows.

What is doubtless a drawback to the system is the dictum made clear by the author, that "*windows and doors should be kept closed*, otherwise proper circulation is interfered with." We shall probably be told that in public buildings and in hospitals for which it is adapted windows in a well-ventilated hall or ward need not be opened, and the occasional opening of doors once the audience in the former is settled would be of little objection. Risk of fire is said to be reduced to a minimum, and dust practically eliminated, inasmuch as dust will not in sweeping rise more than 3 feet above the floor, and is at once drawn through the outlet.

The opinion of many others besides the reviewer is that plenum reverses the order of nature. The author discards this view as being incorrect, and asserts that CO_2 and other constituents of vitiated air *as soon as created* (italics the writer's) are heavier and fall; *ergo*, low outlets and high inlets are the proper expedients, and that by using the latter the pure air gets to the nostrils and lungs before it passes over the body. The height, however, at which they are inserted is often 7 feet above the floor, and taking the example of a ballroom 21 feet high, there would in such case be 14 feet of vitiated air above the inlets only partially driven down. This cannot be described as clearing it throughout "thoroughly and regularly," but so far as it was depressed it would mix with the fresh air and be breathed in by the occupants. We know that carbonic acid gas in bulk, *directly produced*, is heavy; but, speaking broadly, as emitted from the lungs it is in suspension, being warm, and with the conjoint products of breathing and combustion is by experience in that state found to rise. The advocates of natural ventilation believe that the exit should be the higher of the two openings, and the inlet for fresh air be about the level of, or below, the nostrils of the human subject, its ingress (it being the cooler medium) thereabouts tending to help the exit of the upper stratum of light and vitiated air.

One obvious problem is overcoming the difficulty of arranging inlet and outlet in such position that the fresh air does not pass off without replacing after expelling the foul air in every part; but it is one shared with the natural system. The use of electric lighting certainly minimises the deleterious constituents of vitiated air, but the author's suggestion of an additional outlet at the ceiling of one floor, with a special duct carried up to the ceiling of the next, if found to be necessary, is an argument against the adopted positions and against the system in regard to detail.

It seems inevitable that the architect must be in the hands of the expert, and his own reputation will be greatly affected by his choice, but with the architect that choice must rest, as the author admits. It is not surprising that the fortunate ones with large practice seem very chary of publicly giving their opinion, and the young practitioner with his first great commission in hand will do well to inspect as many large installations as possible before choosing his man for this work, and will not leave the selection of a type till the building contract is settled, but decide early. It will be helpful if he can obtain the opinions of leading architects based upon reliable data furnished by men who have managed actual installations and have recorded carefully details of the cost of working and of efficiency. In a public building with varieties of cubical division where plenum is used for large halls it has been deemed desirable, and is the custom, to make use of other systems for the smaller divisions. The reviewer's inquiries of leading architects show that in the U.S.A. plenum is largely used for theatres, churches, art galleries, ball, assembly and court rooms; but what they call the "indirect system of heating," which is more easily controlled, is used for the smaller apartments. Each stack of indirect steam radiators is regulated separately, and different temperatures produced in different rooms. This restriction in the application of plenum to part of a building is, according to the author, a bar to success if any communication with other parts by means of doors exists. It can only be in very large and important buildings that the cost of two or more different systems is warranted, and experts are evidently not agreed as to its wisdom.

The necessity for study of the *ex parte* claims of both schools of ventilation will not, of course, be removed by the volume under review; permission to examine existing installations should be obtained, even where an opinion can be extracted from the architects, and upon this combined examination a decision—and it is a momentous one—must be come to.—Edward W. Hudson.

ST. LOUIS EXHIBITION 1904.

St. Louis Exhibition 1904. *By H. Phillips Fletcher* [*F.*], *Godwin Bursar* 1904. *With Plans, Sections, and Views. Price* 5*s. net.* [*B. T. Batsford,* 94 *High Holborn, W.C.*]

As one of the results of Mr. H. Phillips Fletcher's success in gaining the Godwin Bursary, we have this book as a permanent record of his visit to the most recent of international exhibitions, and the largest.

Even hardheaded Americans seem to have deemed it necessary to provide a sentimental point round which to crystallise the great commercial scheme, and successfully found it in the historic purchase of Louisiana Territory from Napoleon the Great. One million square miles for fifteen million dollars was indeed a stupendous bargain, equal to a penny an acre; and it is a striking illustration of the economical use of gold, as against a resort to arms or arbitration.

Perhaps one of the most interesting features of the Exhibition was the constructive use of wood instead of steel, whereby much time and expense was saved, a further cheapness being effected by leaving most of it bare, except the external façading, elaborately cased in fibrous plaster as usual.

In these critical days, what dare one say of the ephemeral specimens of architectural design distributed over twelve hundred acres, at a cost of £10,000,000? The author attributes to the École des Beaux-Arts most of the academical designing, but justly reserves for Mr. Masqueray and Mr. Link a full meed of praise for the work they produced of distinct charm and originality; but on this point readers can judge for themselves by a glance at the illustrations. Organisers of great exhibitions, and of small ones for that matter, have always to grapple with the question whether their buildings shall represent architecture up to date and original, or old examples, adapted to suit special circumstances. In this case, even if our American colleagues failed to break with tradition, what view should we take of the British, French, and German architects who reproduced Kensington, Versailles, and Charlottenburg? One point may be urged, that organisers are bound to keep an eye on the "gate," and architects are more likely to please the public eye by furnishing adapted copies of famous buildings. But is this reason good enough?

The author notes many things of practical interest. A factor of safety of four was generally adopted in the calculations. The cascades and lagoons were formed of wood. 10 inches by 3 inches oak kerbing was used for roads throughout. Buildings were outlined with 8 c.-p. incandescent electric lamps. 20 lb. wind pressure was calculated on, though it may be noted our L.C.C. regard 30 lb. as low. 30 lb. dead load on roof rafters was allowed, and 40 lb. on trusses. 1,800 lb., in tension and bending, was the working stress on yellow pine.

The quantity and quality of sculpture was remarkable, largely due to Karl Bitter, who controlled that department, and himself produced some of the best work. Of colour decoration there seems to have been none; what a magnificent opportunity was thus lost!

The old-fashioned formal garden laid out round the British section afforded delight to many people, and will no doubt prove useful to the essentially receptive minds of American gardeners.

Possibly exhibitions, like history, can best be analysed at a distance, and, from a careful perusal of this descriptive technical record, we may be disposed to think the architectural work of the St. Louis Exhibition left something to be desired. We may be reminded of that ancient traveller who found himself, as he imagined, in Paradise. He remarked to a friend whom he met that he "thought it would be a bit better than this," and was scarcely reassured when told that it was not Paradise at all, but quite another place.

A. O. Collard.

MINUTES. XI.

At the Eleventh General Meeting (Ordinary) of the Session 1904–05, held Monday, 3rd April 1905, at 8 p.m.—Present, Mr. John Belcher, A.R.A., *President*, in the Chair, 42 Fellows (including 12 members of the Council), 49 Associates (including 2 members of the Council), 3 Hon. Associates, and visitors: the Minutes of the meeting held 20th March 1905 [p. 340] were taken as read and signed as correct.

The Hon. Secretary announced the decease of Frederick S. Waller, elected *Fellow* 1859, *Retired Fellow* 1900, and of Samuel Joseph Nicholl, *Institute Essay Medallist* 1845, elected *Associate* 1847.* On the motion of the Hon. Secretary it was resolved that a letter of sympathy be sent from the Institute to the relatives of the deceased.

The following members attending for the first time since their election were formally admitted by the President—viz. William Edward Vernon Crompton, *Fellow*; Charles Nicholas, John Norman Randall Vining, Douglas Anderson, Edwin George Goodson Bax, and Charles Fry Callow, *Associates*.

Papers on The Planning of Cities and Public Spaces were read by Mr. John W. Simpson [*F.*] and Professor Beresford Pite [*F.*], and having been discussed by Mr. Mallows Freeman, K.C. [*H.A.*], Mr. Walter Crane, Mr. H. V. Lanchester [*A.*], Captain Hemphill (L.C.C. Improvements Committee), and the President, a vote of thanks was passed to the authors by acclamation.

The proceedings then closed, and the meeting separated at 10.15.

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* The decease is also announced of Charles Pertwee, of Chelmsford, *Associate*, elected 1881.

Fontainebleau. From a Drawing by Gerald C. Horsley.

GARDEN ARCHITECTURE. By Mervyn Macartney.

Read before the Royal Institute of British Architects, Monday, 17th April 1905.

I DO not know if I am peculiar, but it certainly is the fact that whenever I have to read a Paper or write an article I find the subject the most difficult one that I have come across. So it is in this case, though why it should be is extraordinary, as it is more than twenty years since I read a Paper under this title to a small society of architects, of which Mr. Belcher was the President, and I have repeated the operation several times since. Whether it is that I have failed to take advantage of the opportunities that have thus been presented I cannot say; but the fact remains that I feel unfit to deal worthily with this subject. One cause of my diffidence is, that I perceive that I have rather changed my views; and whereas twenty years ago I could admit of no opposition to my opinion, I find now that I am more catholic, less severe about certain methods of laying out a garden, and yet at the same time more eclectic in my likings of architectural features. It is a pleasing conceit on my part that I have learned to discriminate between the many methods of dealing with this subject. But this is enough of the everlasting Ego. Let us come to the matter before us.

I chose the title Garden Architecture as a good one because I wished to introduce examples showing how gardens had been treated in other lands than this; to bring before you the fancies, the expedients, sometimes the faults, of garden makers here and abroad. Scarcely any subject has been so exhaustively studied of late years as this has been. It has been treated by architects, horticulturists, amateurs, and almost everybody.

Heated controversies have been waged over the rival advantage of formal and informal gardens. At present there is no doubt that the former hold the field, and though Fashion is a capricious jade, let us hope that in this case she will prove constant. At the risk of being prolix, I will start by citing early instances of formal gardens. One of the earliest accounts of such is in Homer's *Odyssey*, the garden of Alcinous. Though often referred to by writers, it was really a walled orchard. And here I may remark that the word "garden" is the same as "orchard." The latter means orch-yard, wort or root garden.

Next I should like to refer to the description of his garden by the younger Pliny, because it might almost be said to be a modern one. It runs :—

> "My villa is so advantageously situated that it commands a full view of all the country round. The exposition of the principal part of the house is full south, and seems to invite the afternoon sun in summer into a spaciously well-proportioned portico. In front of this portico is a sort of terrace, embellished with various figures and bounded by a box hedge, from whence you descend by an easy slope adorned with divers animals in box answering alternately to each other into a lawn overspread with the soft acanthus: this is surrounded by a walk enclosed with tonsile evergreens shaped into a variety of forms. Beyond is the 'Gestatio,' ornamented in the middle with box cut in numberless different figures.
>
> "On the outside of the wall lies the meadow that owes as many beauties to nature as all I have been describing within does to art.
>
> "At the end of the portico stands a dining-room, which opens from the end of the terrace. Opposite, almost to the centre of the portico, stands a square edifice which encompasses a small area shaded by four plane trees, in the midst of which a fountain rises, from whence the water running over the edge of a marble basin gently refreshes the surrounding plane trees and the verdure underneath them. Between each plane tree are planted box trees, and behind these big trees.
>
> "This plantation, forming a straight boundary on both sides of the hippodrome, bends at the furthest end into a semicircle, which, being set with cypresses, varies the prospect and casts a deeper gloom; whilst the inner circular walks (for there are several), enjoying an open exposure, are perfumed with roses, and correct by a very pleasing contrast the coolness of the shade with the warmth of the sun.
>
> "Having passed through these several winding alleys you enter a straight walk, which breaks out into a variety of others dissected by box hedges. In one place you have a little meadow; in another the box is cut into a thousand different forms, sometimes into letters expressing the name of the master; whilst here and there little obelisks rise intermixed with fruit trees.
>
> "Beyond is a walk planted with the smooth acanthus, where the trees are also cut into a variety of names and shapes. At the other end is an alcove of white marble, shaded with vines, supported by four small pillars. From this bench the water, gushing through several little pipes, as if it were pressed out by the weight of the persons who repose themselves on it, falls into a stone cistern underneath, from whence it is received into a fine polished marble basin, so artfully contrived that it is always full without overflowing. When I sup here this basin serves for a table, the larger sort of dishes being placed round the margin, whilst the smaller ones swim about in the form of little vessels and waterfowl.
>
> "Fronting the alcove stands a summer-house, which opens on a green pasture.
>
> "Next to this is a little private recess furnished with a couch; and, notwithstanding it has windows on every side, yet it enjoys a very agreeable gloominess by means of a spreading vine which climbs to the top and entirely overshadows it. Here you may recline and fancy yourself in a wood, with this difference only, that you are not exposed to the weather. In this place a fountain also rises and disappears. In different quarters are disposed marble seats, which serve no less than the summer house as so many reliefs after one is wearied with walking. Near each seat is a fountain, and several small rills run murmuring along wheresoever the hand of Art thought proper to control their watering here and there different spots of verdure, and in their progress refreshing the whole."

Later, we have the formal and natural schools as represented by Lucullus and Martial fighting the battles of the styles even thus early. All of which goes to prove that there is nothing new under the sun. As you have formal and naturalesque even now, so they existed nearly two thousand years ago, and will go on to the end of all time. In the Romaunt of the Rose (fifteenth century) there is a picture of a garden, or rather gardens—for there are three shown—with divisions, some of stone and others of palisade. A quaint fountain appears in one garden. Most of the paths are laid out geometrically.

The swing of the pendulum has brought the former into power. No architectural treatment is possible in the naturalistic. Nature is supposed to hate straight lines, and therefore winding paths, sloping lawns, and wavy beds are introduced to satisfy votaries of this style.

But we are not concerned with this side of the question. Our business is to examine the examples of the orderly and systematic laying out of a site—to see how man has controlled nature and turned it to his uses. I confess I cannot see why in the construction of a garden human thought and labour should be eschewed. In everything else the evidence of the skill of man is deemed to ennoble and beautify whatever he applies his energies to; and why not a garden?

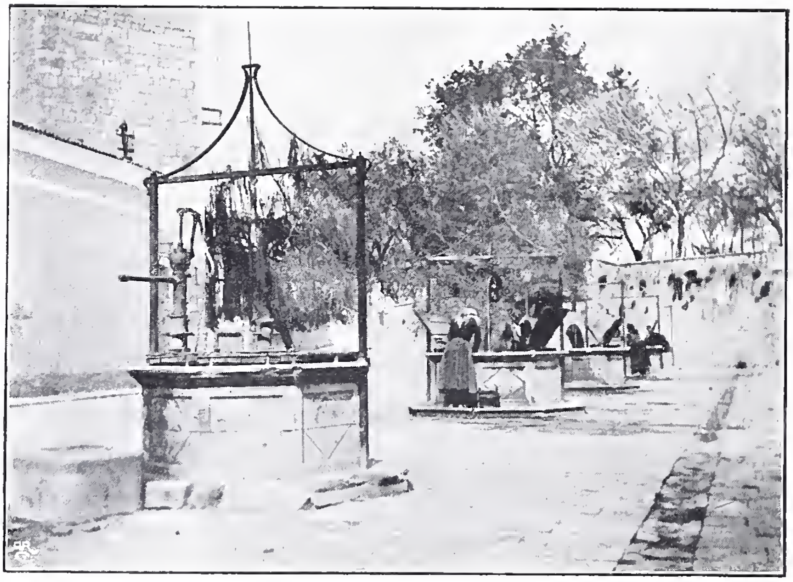
But all this is flogging a dead horse. The result proves our contention. The most interesting examples are those on which the greatest skill has been expended.

I do not mean that the larger the amount of wall and terrace employed the better the result. By no means; it is quite possible to overdo these and produce failure. There are some of the largest and most elaborate creations that fail to excite pleasure in my mind, such as Trentham, Longford, Castle Ashby, Drumlanrig, and even Versailles and Pamphile Doria.

It is difficult to say straightway why it is so, and I feel it is rather presumptuous on my part to state such a proposition; but I am sure that Sir Charles Barry must have been disappointed at the result of his labours at Trentham. In the case of Versailles there is a sense of enormous effort with little result. Vast terraces, lagoons of water, and huge fountains produce no satisfactory effect, only a sense of futility—a useless expenditure of labour and money without adequate return—and therein lies the keynote to the whole matter. Compare Versailles or Trentham with Villa d'Este, Montacute, or Melbourne, and one feels that failure is writ large over both the former conceptions.

But it is more agreeable to turn to the successes than to dilate on the failures. We will begin on our own examples. Montacute, to my mind, is the most satisfactory: it fits the position, and yet, like so many other English and British examples, it owes little to site. It is comparatively flat, and there is no distant view. What charms it has are of its own making. So it is with Wilton and Melbourne, and herein lies a difference from the Italian examples. They generally owe a great deal to position: perched on a hill you have vistas of distant country framed by towering cypresses into delightful pictures. Yet in the British examples you have a distinct sentiment; it is of a garden that you love—a charm that can only be gained by the employment of rare knowledge and design. There is a subtle charm about the terrace at Haddon Hall and the bowling green at Bramshill that is absolutely absent in Trentham or Versailles. There is no great striving after effect. I would rather be the designer of Montacute than Versailles—I will go farther, and say of the Haddon Hall terrace rather than Versailles. Indeed, there are few of the vast garden conceptions that please me. Chatsworth bores me, so does the Crystal Palace; yet they are laid out on grand lines: they are meant for spectacular performances, and unless all the fountains are playing the effect is dismal as an empty theatre. We do not feel this at the Villa d'Este or Borghese gardens. I cannot recall a single picture in which either the Crystal Palace or Versailles is brought in. On the other hand many French painters have placed their scenes at Fontainebleau, a garden scheme almost as vast as either of these.

But I have belaboured these designs sufficiently, and will get on to other examples. The great characteristic of the Italian gardens of the larger sort, as I remarked before, is that they are placed on hills, much as the Scottish and Welsh ones are. This at once gives the architect an opportunity of showing his skill in designing terraces, balustrades, and steps. Some of these are wonderfully ingenious and beautiful. In most cases the flights of steps descend off the centre of the house. One of the finest examples is the Villa d'Este. If possible a jet of water was generally introduced about halfway down. I may remark by way of parenthesis, that the use of water as part of the garden design was very largely taken into account by the Italians; indeed, the hydraulic engineer appears to have been almost as important a person to consult as the architect. He also worked in a sportive vein. Evelyn mentions his ingenious devices for playing practical jokes on the unsuspecting visitor. One must remember, too, that in the Italian garden flowers were no part of the scheme, and scarcely came in at all. Architectural features and evergreen trees were the two principal factors in considering the effect to be produced. Large masses of flowers were not obtainable, and consequently we get beds of box with coloured earth to take their place. Unfortunately what was an expedient to get colour and variety in Italy was introduced as a commendable novelty in this country. Owing to the wealth of antique fragments existing in Italy, vases, urns, capitals, altars, *et hoc genus omne*, were largely used, some as cisterns, others as receptacles for plants, &c. The amount of these antique oddments must have been enormous, to judge by the drawings and remarks of a French architect, Scheult of Nantes, who visited Italy in 1790. They were useful to lighten up the sombre depths of the ilex groves, and were suitable in that climate; but here they look cold and unhappy. Pagan relics do not jar on me in a country where they once formed a part of the religious worship, but in this cold, chilly climate they strike me as being alien and unhappy, and have the air somehow of "specimens" brought together for other purposes than those of art. I speak here of marble more particularly.


WELLS, DALMATIA.

There are so many notable gardens in Italy that I can only pick out a few, I hope typical,

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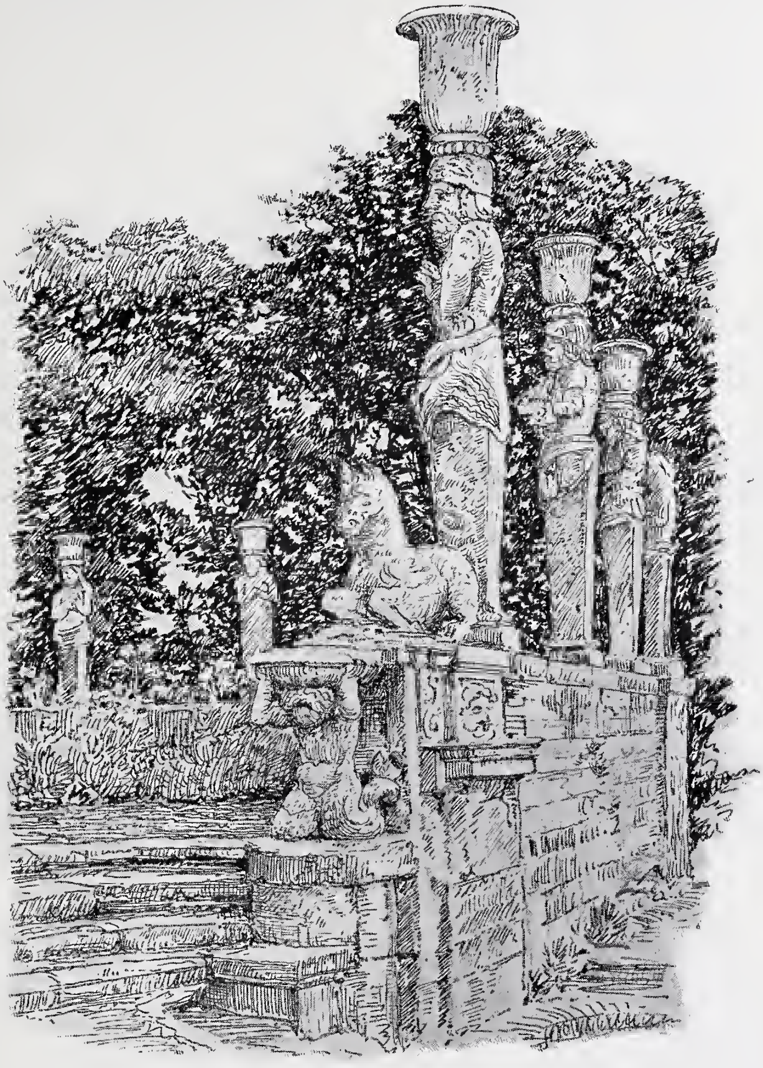
examples to show you what masters there were in their art and craft there. Villa Lante is situated near Rome, and still occupied, and remains in almost the same condition as when first constructed. It is reputed to be the work of Vignola, and occupies a site on the side of a hill. We have here a complete epitome of a country house of a nobleman—a place to retire to when the heat of summer is fiercest. And only those who have been in South Italy in June, July, and August can realise what this means. It begets a craving for shade and the sound and sight of water. So we find that the latter holds a foremost place in the scheme of this villa, a large pool with a fountain midway between the two blocks of the house. The everlasting box-tree patterns form the beds, and the whole is enclosed with a terrace.



CAPRAROLLA, ITALY.

Caprarolla is another interesting example. It is a fortified mansion with a garden stretching behind it up to a singular crowning architectural conception, a quadrangle of

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gigantic figures standing up against the sky line—gaunt, fantastic creatures, now toned by age. How they looked when new I hardly like to think. Now, as our transatlantic cousins would say, they look "immense," but their coarseness is softened down by the growth of trees and mellowed by time.

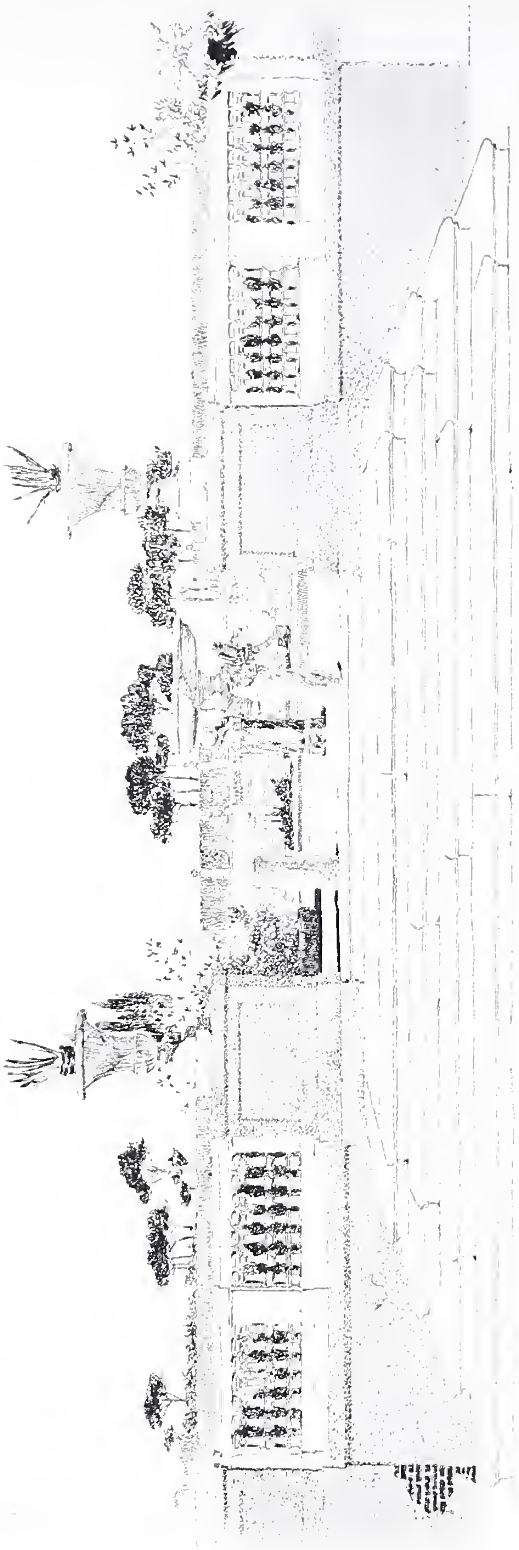
Villa d'Este has been so often illustrated that it seems scarcely necessary to refer to it. The house, a large barrack-like building, stands, as usual, on a high hill, with a steep flight of steps coming down in front. On this second terrace there is – or rather was, it has fallen into dire ruin—a row of cisterns.

At the foot of the steps is a large pool with gigantic cypresses surrounding it.

In Rome itself the most important are Borghese, Albani, Pamphile Doria, and Medici. The Ludovisi has been cut up by the speculating builder.

The Borghese is just outside the walls, and is a most charming conception.

The Albani was laid out by Marchionne largely to show off the rich collection of antiques collected by Cardinal Albani. The plan is a good example of carpet gardening. I cannot say that it appeals to me. I have but the faintest liking for the geometrical garden. Its mathematical pattern excites no pleasurable emotions; still parts of it are excellent—like the curate's egg. A sketch by Mr. Edwin Hardy shows such an example.



VILLA ALBANI: STEPS. FROM A DRAWING BY E. G. HARDY.

And here let me digress to point out the extensive use of cement plaster by the Italians in their architectural works. It came upon me as a surprise and shock to see this. But I am not at all sure that there is not a great deal to be said for its use. The employment in England of brick and stone is almost universal, but I often think it is unsatisfactory. It makes the design look fussy. *De mortuis nil nisi bonum*; but I do not feel that my good friend the late John Bentley would quarrel with me for showing a view of the terrace at Beaumont College. It has two faults, in my opinion;

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one the lack of repose from the use of brick and stone, the other from too much refinement in detail. The Italians went to the other extreme in many of their compositions done in the Baroque style with great, coarse figures of grotesque men and beasts in cement as well as other ornamentation. But there is a mean in everything, and too much refinement of detail out of doors is as unsuitable for its place as too much coarseness. It is all a question of proportion, the most difficult art to acquire in architecture.

But I have wandered from the subject.

CERTOSA, FRIARS' GARDEN. FROM A DRAWING BY E. G. HARDY.

The Villa Medici is, as most of you know, the home of the French artists in Rome, and has preserved its characteristics untouched for many years. It has, what was a common feature of most Italian gardens, a long raised terrace or walk on one side overlooking the garden. I fancy this is a survival of the rampart which still exists in our country to enable the inmates to observe the approach of their enemies, and defend themselves against attack. It seems strange to us to think of such a necessary precaution; but it undoubtedly was the case that nearly all the more important houses had walls or moats round them for protection; as Shakespeare says, "a moat defensive to a house against the envy of less happier lands." Many of the walls that we admire as part of the scheme of the laying-out of a garden were constructed as defensive works and not for architectural effect.

Pamphile Doria, though much admired, I will dismiss in a few words, or rather by showing a plate. It owes its notoriety to extensive gardens.

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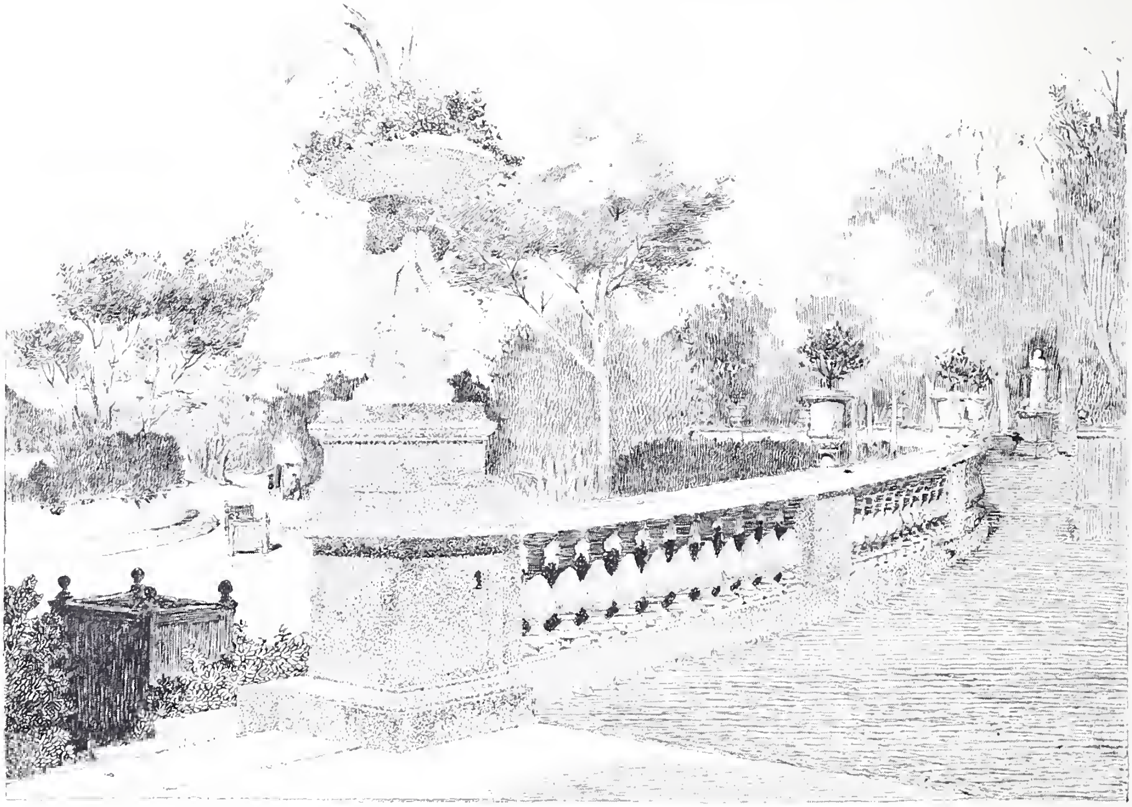
I must not keep you much longer in Italy, or else you will think that I should have entitled my Paper Italian Gardens; but I cannot leave that country without showing you the garden of one of the monks of Certosa. To me it has a great charm from its simplicity. I am afraid I have used it too largely, but I do not know of a more pleasing instance of the use of a stone balustrade for a small garden. It seems to me to fulfil its purpose exactly.

The gardens round Florence have unfortunately been sadly damaged by the craze for naturalism. The introduction of the English garden has caused the destruction of many interesting examples. One still remains in its former state . . . the Villa Gamberaia. We see here the bowling alley and the terrace very much as they were originally.



GARDENS OF THE LUXEMBOURG, PARIS. FROM A DRAWING BY E. G. HARDY.

There are many other examples that I should like to refer to in this sunny country, such as the Isola Bella, on Lago Maggiore, and the Lombardy country, but I have not the time, and also, owing to the shifting of my home, I have lost the plates (I hope, however, only temporarily).

Before beginning to consider the home gardens I may remark that there are certain essential differences between English and French, Italian and Spanish gardens. In the first place we can count on any amount of what Milton calls the "smooth enamelled green," that is, lawns of the finest description. In the other countries they can only be obtained by great care and attention; consequently what with us is a great feature becomes a source of trouble and difficulty to the foreigner. It is like withdrawing a primary colour from the palette of the painter. I fancy that the Americans have a similar difficulty, though they have overcome it by using sprinklers ; but I never saw in my visit there any lawns to compare with ours. Another point of difference is that shade is of vital necessity in those countries. Here it rarely is the case, and I do not feel so enamoured of pergolas as most people are. A great many are nasty damp places totally unfitted for the climate.

A third point is the effect of strong sunlight and heat. A marble seat here is a very uncomfortable place to sit on. It is generally damp and cold, therefore unsuited to our climate. I consider Ven House garden near Yeovil unsatisfactory : though placed in one of the driest and sunniest parts of England, its stone seats and marble figures are out of place. They look white and staring. I will now turn to our home examples, but adopt a different method here.

GATEWAY, PENSHURST. FROM A DRAWING BY E. G. HARDY.

I propose to go more into detail and show examples of different ways of treating some of the many factors that make up the sum of an architectural composition—such as terraces, steps, &c.

The number of gardens is so immense that I should have to detain you for very many hours if I were to describe each garden in detail. It would be more possible to deal with their charm and illustrate them by a few instances.

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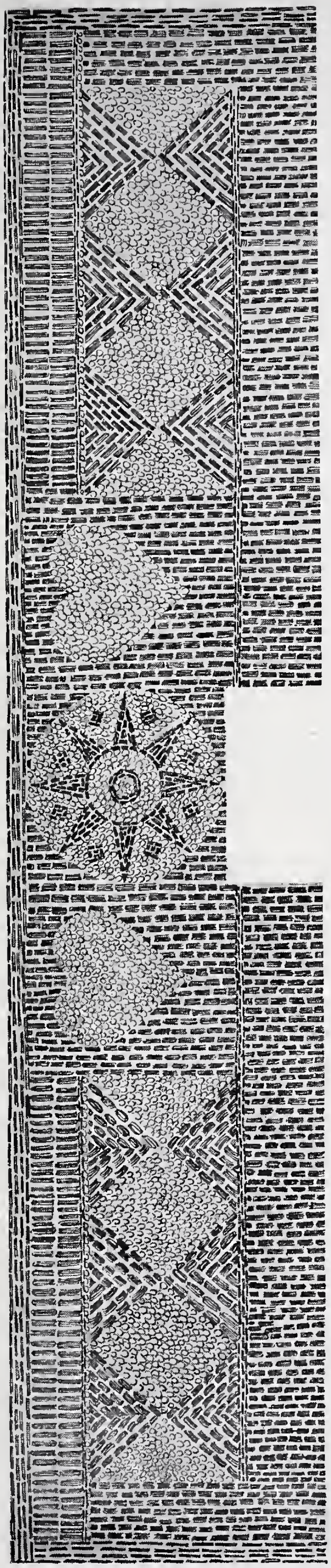
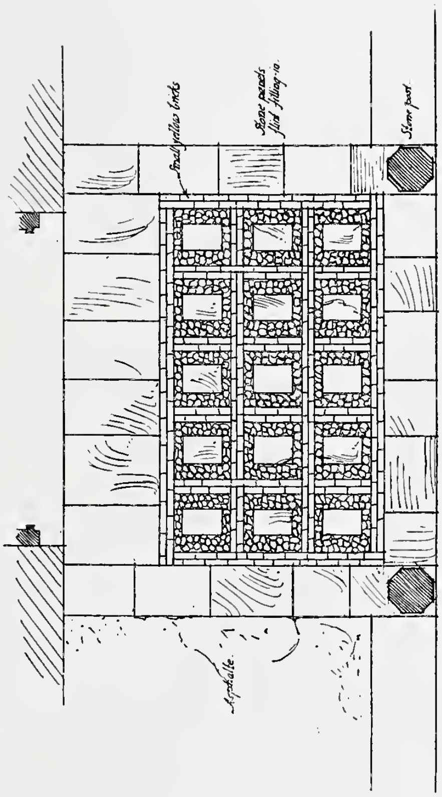
Terraces.—One of the most important features is a terrace. No definite rule has ever been arrived at to guide one as to the width that these should be. Some have said that the widths should be equal to the height of the building. But it is easy to quote excellent instances where such a rule has been disregarded. Still, there is more chance of failure by putting a narrow terrace than a broad one. Generally speaking, the width is largely governed by the amount of surplus earth excavated from the foundations. If the site is a very steep one the terraces are usually narrow. In the case of Barncluith, these narrow terraces are a prominent feature.

SUMMER HOUSE, GREENWICH. FROM A DRAWING BY E. G. HARDY.

Balustrades.—Balustrades admit of much play of fancy. The turned baluster is very commonly used, in English work widely spaced, but in Italy and France never more (in classical examples) than two-thirds interval. To my mind this gives a heaviness to the treatment that is unpleasant. The balustrades at Bramshill, St. Catherine's, Brympton, have intervals six or eight times the width of the balusters, and I think it looks much better. Pierced stone has been used in many cases with good effect, also half-round tiles, as well as chimney-pots; but I have never been able to discover their beauty. I feel that if you cannot afford to do your work decently you had better leave it out altogether. You can be too clever in your economies, and defeat your object. I once saw a very ingenious and at the same time beautiful example of parapet in a book of Chinese travel: it consisted of terra-cotta hexagons of a charming design. Unfortunately I have been unable to lay my hand on this illustration: in common with several others it has been mislaid owing to my moving from one house to

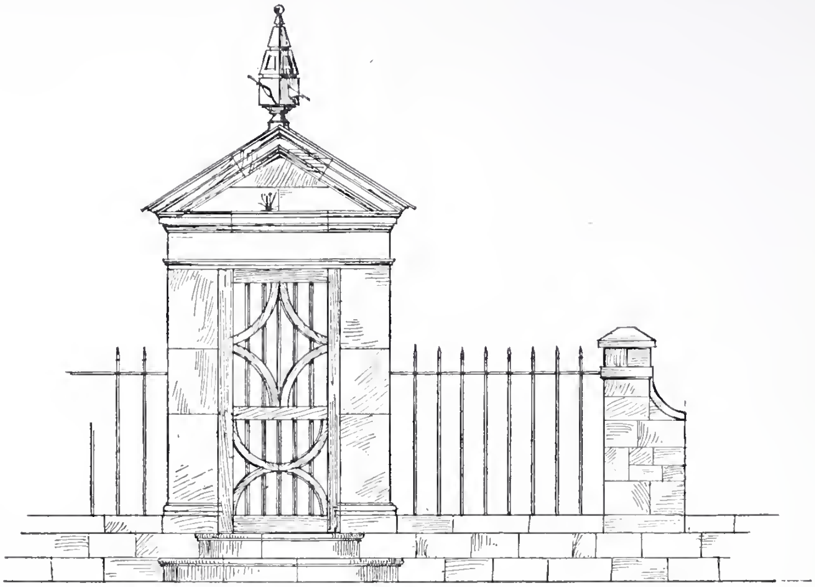


PEBBLE PAVEMENT, HURTMORE, GODALMING.

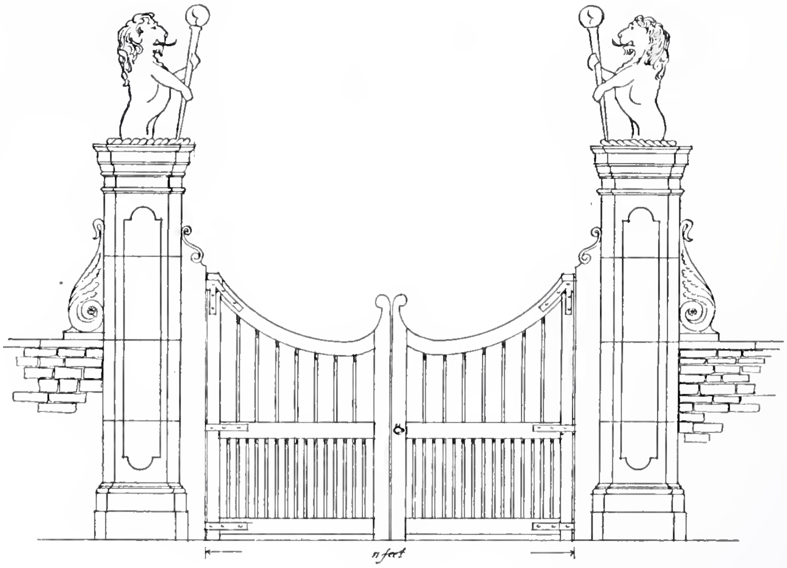


PAVEMENT, HENDON.

another. It was not uncommon for architects in England to vary the monotony of a length of balustrade by introducing quaint terminals on the piers, and also pavilions, at intervals and at the corners. Montacute is a case in point: the play of fancy in this design is very happy. Sometimes figures are introduced, as at Wilton, also with great effect.



MASON CROFT, STRATFORD-ON-AVON.



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The more strictly classical architects generally content themselves with vases. Next to terraces, steps or stairways are the most important features. Great skill and ingenuity has

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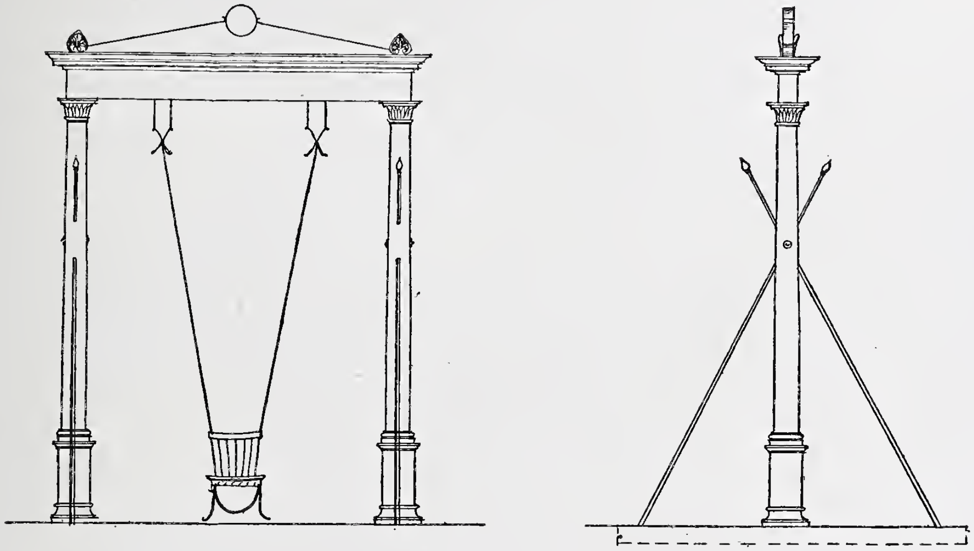
been expended on them. In England rectangular plans are mostly adopted. In Italy curves are largely used; the objection to the latter is the difficulty of working in the parapet or balustrade—the two sides must run on different lines.

A most interesting example is that of Prior Park, near Bath—a grand composition, which it is almost impossible to reproduce adequately. The architect must have had very competent workmen to carry out his design, for the curves are very subtle and intricate.

I am afraid I should bore you to extinction if I were to go into the mass of architectural detail that come into this subject. I will therefore merely show my examples, and say a word or two as they are passed before you.

Gate Piers.—A most interesting subject, and one that is capable of indefinite illustration.



SWING (*temp.* 1800).

Fountains.—Here we trench on the sculptor's domain, and therefore I will keep a discreet silence, merely remarking that where there are figures let them be of the best. But I think if mere mouldings are used I should employ an architect to design them.

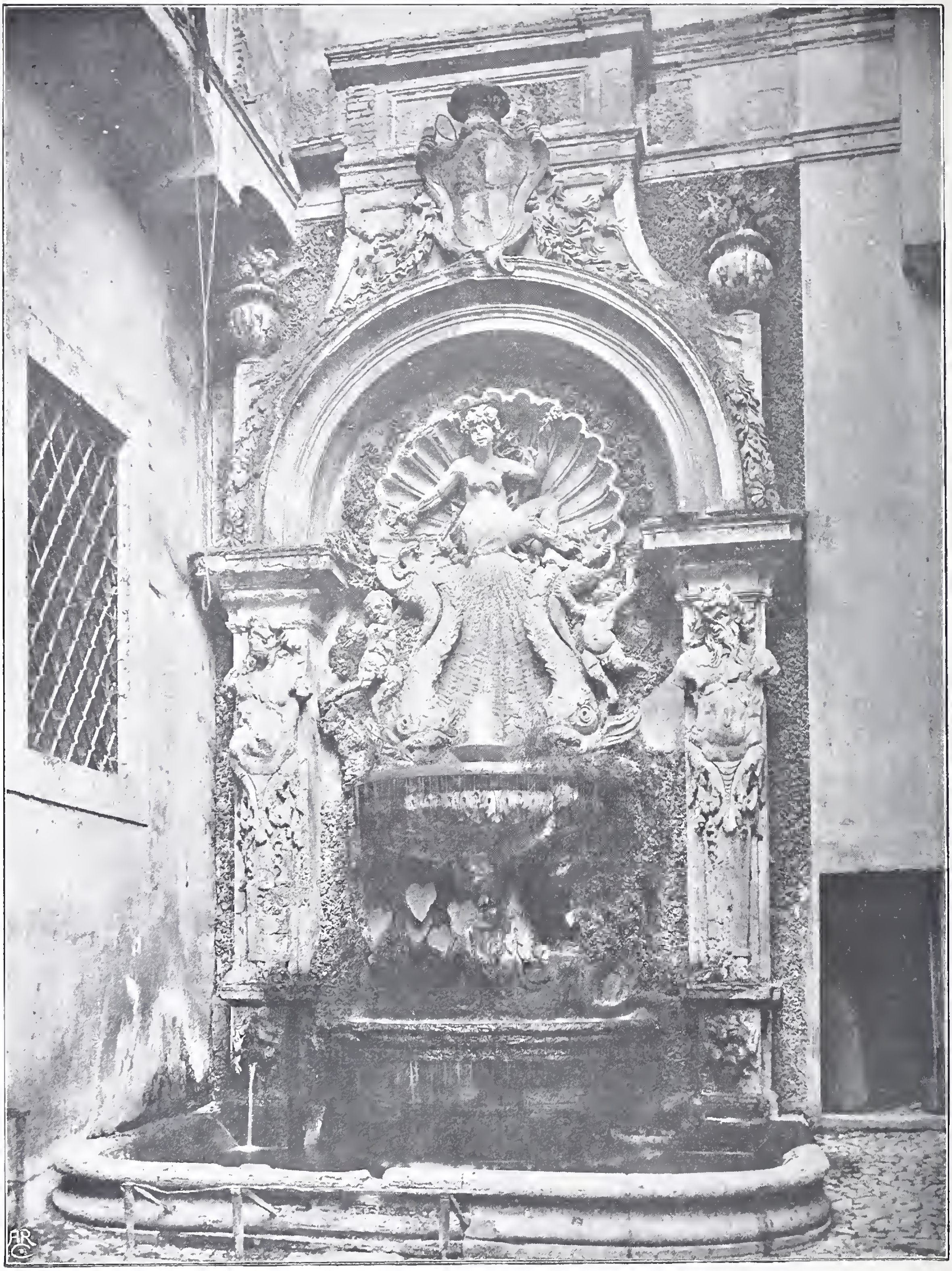
Ponds.—A most delightful feature of a garden. Mr. Lutyens has designed some charming conceptions, especially at Sonning. His use of undressed stone is a delightful innovation.

Sundials.—No Paper on garden architecture would be complete without reference to sundials. Whether for use or merely ornament they appear to be peculiarly appropriate in a garden. The enormous variety of their forms makes them extremely useful as points of interest. Silent sentinels of the passage of time, they instinctively attract one. Few pass them by unheeded.

Pavements.—Though beneath one's notice in one sense, I have found them a very interesting subject for investigation.

To sum up I give you my views on this subject.

If I were called on to lay out an extensive garden site in England I should have long herbaceous borders with grass paths, and should avoid geometrical beds. I mean those unhappy compositions where you have shapes like tadpoles, kidneys, &c. Neither should I embark on topiary work on any great scale. Hedges of yew, privet, hornbeam, &c. are charming



FOUNTAIN, ROME.

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adjuncts to a garden, and here and there trimmed shrubs are useful; but I cannot admire Levens, Elvaston, or Blickling.

As our country is the most beautiful in the world, I should take advantage of every opportunity that offered of incorporating it into my scheme. With reference to this assertion of mine, that England is the most beautiful country, I may mention that it is the opinion of a German traveller of eminence, viz. Mr. Carl Peters, who states this in his book entitled *Ten Years in England.* All things considered I think you will agree with me that it would be difficult to get a more impartial opinion.

Supposing I had not merely the laying out of the site of a garden, but also the choice of its position, I should not choose a lofty hill with a panoramic view. From the result of my experience I am certain that this is a mistake: you want foreground and middle; distance; you want human interest.

FONTAINEBLEAU. DRAWN BY GERALD C. HORSLEY.

It is true that the Italians were prone to perch their villas on a height, but you must remember the altered conditions of society. These places were used by wealthy nobles, lay and clerical, who brought an enormous retinue with them. The stable accommodation at Caprarolla is for eighty-three horses. Whilst the family was in residence these vast terraces and walks were peopled by a numerous tribe of visitors and attendants, and there must have been a constant going and coming of knights and dames. Our habits are different, and I feel inclined to restrict the extent of formal garden.

Avenues of trees bordering a long stretch of water, as seen at Fontainebleau and Hampton Court, please me more than the terraces and beds of Versailles. You cannot dissever yourself from your climate; and though I vastly admire the superb cypress, ilex, and arbutus groves of

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Italy, I am as fond of our deciduous trees, even in winter. It may be impious, but I do not care very much for the appearance of evergreens in England except the yew and holly. Their foliage has a hard metallic look that seems to indicate that they are not happy in their surroundings.

But to return to our subject. To my mind the detail, invented and perfected in this country, of terrace walks, balustrades, &c. is preferable to that of any other country. In Italy, where it is not strictly classical, it is debased by horrible baroque. The uncouth monsters used in Italian design are, to me, a most extraordinary phase of bad art.

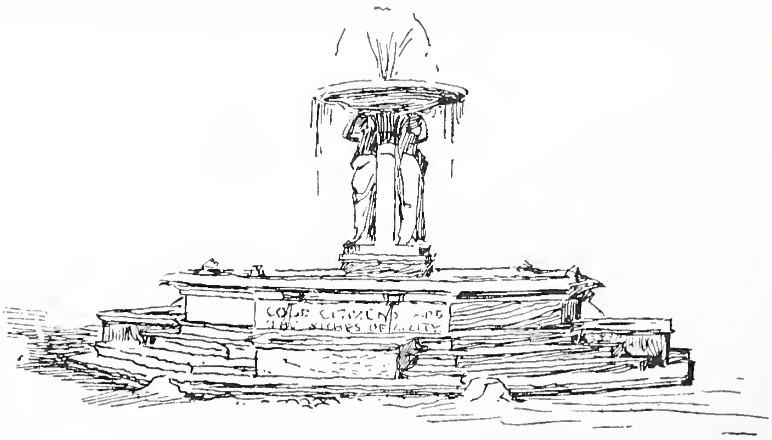
How such an artistic nation could have sunk to this level of such hideousness is past my comprehension. I have before animadverted on the over-refinement of some of our modern English and American architects, but I did so in a mild way, simply stating that too much delicacy is out of scale where you have nature as your background; but to go to the other extreme and produce a vast architectural composition with Brobdingnagian deformities is quite another thing.

Further, I should avoid marble, as looking too white and staring. You can get a very fair surface in cement (concrete), provided you do not use too much sand and water or ram it down too well; if you do, the sand and cement will come to the surface and show the lines of the plank strutting.

Dwarf walls of bricks laid dry assume an appearance of age very rapidly.

The grottoes, with walls ornamented (as it is called) with shells and stones, make me positively ill. I cannot even agree with the American girl who told me that one of these places was the "cutest" thing she had seen in Europe. What she meant I do not know, but it is not the adjective I should have used. The conclusion I have come to is that we have nothing to learn now from foreign examples, that we have enough in this country to guide us, and that the best are those which are not slavish copies of other lands.

In conclusion I thank you for your kindness in listening to this rambling statement of my views, and if I have induced any of you to look at the subject from my standpoint I shall be happy. I must also gratefully acknowledge the kindness of many friends in allowing me to use their sketches and drawings for the lantern slides. My thanks are due to Mr. Batsford, Mr. Inigo Triggs, Mr. J. J. Joass, and Mr. Hudson.



Fountain, Portland, Oregon, U.S.A. Olin Warner, sculptor.

DISCUSSION.

The President, Mr. John Belcher, A.R.A., in the Chair.

Mr. T. H. MAWSON [*H.A.*], in proposing a vote of thanks to the reader of the Paper, remarked that he was in this dilemma, that, whilst the proposer of a vote of thanks was expected to alternate between praise and criticism, he had nothing but thanks to offer both for the most interesting Paper and for the excellent plans and photographs with which it was accompanied. A Paper, however, was supposed to form a basis for discussion, so that by threshing and winnowing we might obtain sound wheat for the sustenance of the mature practitioner and the growth of the young ones. He begged, therefore, to be allowed, for the purposes of discussion, to allude, not to what the Paper did state, but to what it omitted to state. In the first place, there was practically no reference to the principles or ethics of garden design, and not very much about the planning of gardens, but much about details; and there was a grave danger of would-be garden designers concentrating their efforts and frittering away their opportunities on details. They had, again, heard much about gardens, little about the house, and less about the landscape. They were not told what part the garden played in harmonising these, so that the one might be "suitably received into the bosom of the other." Details were most important, but only after we have settled essentials and the orbit round which we are to move; and it could not be too strongly insisted upon that garden designing did not begin in the study of details, but by dwelling in the moral atmosphere which characterises the joyous life, and sober chastened happiness of our people; or by listening, as Wordsworth nobly expresses it, to the "still sad music of humanity." We must find a centre line, and view the circumference of our activities from the centre, and one would generally realise that one's client

> whose master bias leans
> To homefelt pleasure and to gentler scenes,

is the nearest point to this centre, and that our work consists in expressing his needs and harmonising and humanising his surroundings. This is more difficult than many architects realise or care to admit; for, as Lord Bacon says, "When ages grow to civility and elegance, men come to build stately sooner than to garden finely." Between architecture and garden design there was this great difference, viz. that the first, though not soulless, is essentially a constructive art; the latter cannot be wholly such, for it deals with living things; the one is carved and sculptured, the other grows. In offering these suggestions Mr. Mawson believed, judging from the executed work of Mr. Macartney's which he had seen, that the reader of the Paper would agree with these considerations. In any case, his object in introducing them was merely for the purpose, not of lessening the importance of architectural details, of which they had been shown such beautiful examples, but for the purpose of urging the importance of design in mass, and to show that the garden designer's work, unlike the architect's, does not pose solid, inflexible, and immovable on the earth, but has to assimilate with it. Architecture affords opportunities to immortalise the man. Garden designing best succeeds when it effaces the man; because, primarily, his object is not to devise and plan, but to fall in with the forces already at work.

Colonel PRENDERGAST [*H.A.*] said that, in accepting the President's summons to second the vote of thanks, he might explain that as he was probably the nearest approach to the outside public amongst members present that evening, it was not altogether without reason that they should hear a word from him. He confessed that he hailed with the greatest pleasure the circumstance that this subject had been brought before the Royal Institute of British Architects. He was old enough to remember the time when it was considered that when the last slate was put upon a roof the architect's business was ended. *On avait changé tout cela.* Nowadays architects were asked to design a great deal more than the walls of a house, and he ventured to think that the subject brought before them that evening was one that must come more and more frequently before architects if only times became better; for what was done in the way of architecture or architectural laying-out of a garden was more or less a question of pounds, shillings, and pence. He had said the architectural laying-out, but now he confessed he could not agree with all the arguments of the author of the Paper. He was absolutely at issue with him on the question of the geometrical laying-out of land. Nature, it was true, required no help from them; she would give all the charm and delight that could be desired; but, in his opinion, the geometrical laying-out was a preliminary necessity. He would ask them to go no further than Hampton Court Palace and see what Dutch William had done for them. He had laid out those grounds which were now the glory of the Metropolis. They were not pitched together here and there, as people do now, without any rules or principles whatever. On the contrary, there was not an avenue at

Hampton Court which had not been carefully laid down on architectural principles. The consequence was that William III. had not merely acted for his own period. Nature had filled up the gap, and we had now one of the most entrancing things of its kind on a very inferior site. He was sorry to differ from the writer of the Paper, who had done them such good service in bringing this matter before them; but he confessed he could not accept that insular interpretation which had been put upon these subjects. He was quite aware that in that room they had had from even prominent members architectural speeches showing an utter want of appreciation of the Piazza San Pietro, and also of the great cathedral to which it belonged; so that it was nothing new to him to find people saying that Versailles and other gardens on the Continent were not to be looked at because they were unsuitable to this little island of ours. We have our own specialities, and we should make the best of them; but we should not go about the world saying that nobody knows anything but ourselves. With regard to one small matter of detail in the Paper just read, he should like to refer to a garden in our own island on the banks of the Thames—a very lovely spot, one of the most striking he knew—situated at a place called Beaumont College, near Eton and Windsor. It was formerly the house of the great Governor-General of India, Warren Hastings. Some allusion had been made to that garden, and he should like to know whether it was to the original garden of that period or to some new addition which had been made to that interesting house.

Mr. F. R. FARROW [*F.*] said there was one point that occurred to him with regard to an architect's connection with a garden—viz. that they seemed to forget that a garden was a place in which to grow things. Their work as architects, he thought, ought to be confined simply to the provision of a frame in which things might grow. If they adopted that as the basis of their work they should abstain from much of that formal cutting of hedges and distortion of nature into geometrical forms which he thought was one of the points Mr. Macartney objected to. As architects, he fancied their work would be done when they had laid down the general lines of the mass in which the design was to be carried out; then they should turn to their friend Mr. Mawson and ask him what plants, what herbs, what shrubs, they might plant in order to produce a succession of colour during the months of the year, so that their garden might not only be a joy for once in a way, but might have the variety they constantly found in the works of nature, and so unite in their design a geometrical laying-out of the surroundings with the beauties of nature itself. That, he thought, was the beginning and ending of the architect's connection with the garden. All he had to provide was the frame and such adjuncts as might be necessary to complete that frame. In an English garden, which was under quite different conditions from an Italian garden, one must have opportunities for shade occasionally, and for shelter. That gave architects an excuse for putting in summer houses and arbours as part of their scheme in framing a garden. He quite agreed with Mr. Macartney's remarks as to the introduction of sculpture in an English garden. Sculpture to be of any effect in the form of single figures must be more or less that of nude figures; and nude figures in white marble in an English garden against a background of dark green had, he thought, produced some of the most distressing effects one could possibly imagine. Therefore, in laying out a garden, sculpture was one of the things they should try to avoid, unless their client was prepared to spend sufficient money to build a loggia or museum in which to place that sculpture under cover. Those were the main points which appeared to him to need attention, and he had very great pleasure in supporting the vote of thanks.

The PRESIDENT, in putting the vote of thanks, said that with regard to gardens generally they were the architect's opportunity of linking his work with nature. The rigid geometrical lines of architecture would come rather suddenly upon nature if left to itself, and the pushing out, as it were, of tendrils linking it to the site seemed to him to bind it beautifully to the soil, to soften the harsh lines and bring them into unity with the more rounded and undulating forms of nature. Mr. Macartney had drawn their attention to one thing which he thought was important—viz. that architectural details in connection with gardens should not be too refined in detail, because they were not in scale with nature. There was a great truth in that, and probably it had something to do also with the size of the garden, since it was all a question of proportion; the garden should not be unduly extended or out of proportion to the house. The mansion or the house should indicate somewhat of the size and extent of the garden; it should not be overdone; it simply wanted to be linked to nature and not to extend to too great a distance from the house. Another point which occurred to him was the beauty and advantage of slightly screening parts of nature: the quiet, retired beauty of an enclosed garden, which enabled one to have peeps through from one screened part to another, and to frame in certain beauties of the distant landscape. It was one of the difficulties architects had to contend with in laying out gardens. It was a difficult matter to persuade a client that to screen off some portion of his ground was an advantage; he liked to see it all at once, whereas the charm was to see portions at a time. He was not sure that Mr. Macartney had not been misinterpreted in some respects with regard to his idea of a formal garden, but he would leave him to defend himself. With regard to the laying out of gardens he believed that he was quite in sympathy with the idea of the formal garden and its great advantage when linked to architecture.

Mr. MACARTNEY, in reply, said that Mr. Mawson had raised the question of the design of the gardens at Penshurst Place. He happened to know Penshurst very well, and he fancied that Lord de Lisle had had more to do with the designing of the garden there than Mr. Devey had. He (the speaker) had stayed there a good deal, and had seen the work going on, and he thought that although Mr. Devey had influenced Lord de Lisle, Lord de Lisle had influenced Mr. Devey quite as much. It was a point which had been raised before, and Lord de Lisle had written to Mr. Blomfield about Penshurst Place gardens being ascribed to Mr. Devey, and said that he was the author. At Penshurst itself Lord de Lisle got the credit, and it was acknowledged, although he was assisted by Mr. Devey. With regard to Beaumont College, the work referred to by Colonel Prendergast was quite modern. He thought that Colonel Prendergast had somewhat misunderstood him about the laying-out of gardens. He was quite in sympathy that it should be geometrical, but he did not like carpet gardening—that was the point, as he had tried to explain. The examples he had shown them of carpet gardening were unpleasant to his mind; they were used largely in Italy, he believed, because they had no flowers. Here in England their use was quite indefensible, as we had flowers, and we did not want those geometrical patterns. He could not recall the exact words, but William Morris had made some very pertinent remarks about colour in the laying out of a garden in an excellent pamphlet he had published on the subject. With regard to the remark of one of the speakers about a garden being for growing things, that, no doubt, was excellent; but he thought the thing to do was to incorporate into their scheme the surrounding country so far as possible, and to have vistas. There was a great deal to be done by leading the eye from the immediate garden to the surrounding country; it need not be very extensive, but anything that gave them food for thought and made it poetical was always interesting; the mystery, for instance, obtained by screening off a portion of the garden made it more interesting, and that was the thing to aim at.

INCORP. 1837 1887

9, Conduit Street, London, W., 22*nd April* 1905.

CHRONICLE.

Special Election to Fellowship.

The Council, at their meeting on Monday the 17th inst., elected the following gentleman to Fellowship of the Institute, under the proviso to By-law 9—viz.:

> Benjamin Priestley Shires, *Tite Prizeman* 1886, *Associate* (elected 1893), President of the Devon and Exeter Architectural Society; of Old Town Chambers, Old Town Street, Plymouth.

Council Nomination List.

The name of Mr. Herbert Davis [*F.*], of Scarborough, was accidentally omitted from the "Council's Nomination List," recently issued. Mr. Davis was nominated by the Council at their meeting on the 3rd April as a member of Council.

Notice to Members.

The Council have passed the following resolution:—

> "That this Council is of opinion that Members of the Royal Institute of British Architects should not publicly designate themselves otherwise than as '*Architect*' or '*Architect and Surveyor.*'"

The Lightning Research Committee.

The Lightning Research Committee, which was organised four years ago by the Councils of the R.I.B.A. and the Surveyors' Institution, with the object of obtaining trustworthy information on disasters from lightning as affecting buildings, of investigating the causes of the failure of lightning conductors to protect, and of suggesting, if possible, improved means of protection, have now completed their Report, and arrangements are being made for its publication in an early issue of the Institute Journal. Sir Oliver Lodge, F.R.S., a member of the Committee, is contributing a Preface to the Report.

The Proposed London County Hall.

The following details, prepared by Mr. W. E. Riley, Superintending Architect of the London County Council, have been made public as to the proposed new County Hall and Administrative Buildings, which the Establishment Committee recommend should be erected on the Embankment almost opposite the Houses of Parliament:—

A perspective drawing has been hastily prepared showing the possibility of a dignified architectural treatment of the river façade. As shown on the drawings, the lower Embankment would be made accessible to the public, thus continuing the treatment in front of St. Thomas's Hospital, and thereby adding architectural dignity to the river frontage, whilst the terrace at the higher level is intended for the use of members only, and would be approached from the reception, committee, and other such rooms.

The whole of the administrative offices, comprising the above rooms, council chamber, lobbies, committee rooms, members' rooms, chairmen's rooms, lady members' rooms, and additional rooms adjoining thereto, could be arranged on the principal floor, the offices being accessible from an entrance in an inner quadrangle approached by a carriage-drive from Belvedere Road, which will be widened to at least 50 feet. Minor entrances for the public and staff could be provided on the Belvedere Road and Westminster Bridge approach, and by this arrangement ready access would be obtained to all parts of the building, and thus avoid the congestion of the traffic which might possibly occur with entrances on one front only.

The river at this point runs nearly due north, and, the site being approximately parallel with the river, three important façades would be respectively on the south, east, and west aspects; the maximum of sunlight would thus be obtained throughout.

In the middle portion of the river façade might be placed the council chamber and committee rooms, which could be grouped around a central feature, and, in this position, would be subject to a minimum of the external disturbing influences of traffic and noise.

To improve vehicular approach, and also the lighting of the lower floors on the east frontage, the width of Belvedere Road will be widened. The leading frontages will be 800 feet to the river, to the bridge approach 240 feet, and to Belvedere Road 760 feet. It will be seen that access is obtained on three sides of the proposed building, and an important improvement initiated on that side of the river. For the purpose of comparison the frontage of Somerset House is about 550 feet.

On the basis of 150 super. feet for each officer, the building will accommodate 2,589 officers, and allows 61,790 square feet for storage accommodation. The present number of officers is 1,665.

The approximate estimated cost of the building, foundations, and embankment, as indicated in the sketches above mentioned, is £1,100,000. The estimated cost of acquiring the site is £600,000, making a total for the whole scheme of £1,700,000.

A flight of steps at present exists on the south-west corner of the site, and it would appear to be necessary to provide public access to the river at that point. The effect of this on the plan would require to be carefully considered hereafter.

The aim would be in maturing such a scheme architecturally to treat the exterior of the building in a simple and dignified manner, to exclude all useless ornament, and to depend more on the proportion of the masses to attain dignity and fitness in the appearance of the building.

This would probably be best answered by constructing the whole of the external façades in Portland stone. It would add to the appearance and beauty of the position to plant such trees and shrubs on the lower terrace as the exigencies of the traffic would permit.

At the meeting of the County Council on the 18th inst. the following recommendations of the Establishment Committee were agreed to:—

(*a*) That the estimate of £600,000 submitted by the Finance Committee be approved; that the purchase for the purposes of new offices of the properties bounded on the north by premises occupied by the Council's works department, on the south by the approach to Westminster Bridge, on the east by Belvedere Road, and on the west by the river Thames, as shown on the plan now submitted, at a cost not exceeding £600,000, be approved, and that the Establishment Committee be authorised to take the necessary steps to acquire the property. (*b*) That application be made to Parliament in the Session of 1906 for authority to compulsorily acquire any interests in the site referred to in (*a*) which may not be purchased by agreement.

London Building Acts Amendment.

The Public Health Committee of the London County Council report to their Council as follows:—

The Parliamentary Committee have informed us that, as the result of a compromise arrived at in the House of Commons between the members of Parliament in charge of the London Building Acts (Amendment) Bill and of the City of London (Escape from Fire) Bill, it was agreed to drop all parts of the Council's Bill with the exception of Part VIII. (Means of Escape from Fire).

The portion of the Bill thus dropped contained, among other provisions, clauses—

To provide that factories, warehouses, &c., shall not be erected upon open spaces which are surrounded by dwelling-houses, and upon which dwelling-houses would be prohibited on account of lack of air space.

To make better provision for the lighting and ventilation of habitable basements.

To require a certain amount of open space at rear to be provided to domestic buildings other than dwelling houses at ground level in old streets when rebuilding.

To require provision of open space about all domestic buildings not abutting upon a street.

To provide for the maintenance at all times of the open space provided in accordance with the Acts.

To provide that open spaces behind houses shall be larger than the present Act requires.

To provide that sufficient open space shall be provided to allow of the means of access to the inspection chamber required under the Public Health By-laws for the purpose of disconnecting the drain from the sewer being placed outside the building.

To require the space at the rear of all buildings used solely for dwelling purposes, in streets laid out before the commencement of the Act of 1894, to be provided at the level of the adjoining pavement.

To require that courts for providing light and air shall be provided in the centre or interior of new buildings exceeding 150 feet in depth.

To amend the provisions relating to courts for admitting light and air to domestic buildings so as—

(*a*) To make a minimum provision for the ventilation to a court enclosed on every side.

(*b*) To make it clear that the window referred to in the provisions is intended to be a window provided to comply with the rules as to habitable rooms.

(*c*) To omit from section 45 of the Act of 1894 the provision that a court of which the greater dimension does not exceed twice the less dimension shall be held to comply with the section if a court of the same area but square in shape would comply therewith.

(*d*) To reduce the depth allowed for a court open on one side and to make the rules as to windows to habitable rooms apply to any window to a habitable room, including a room in a basement.

(*e*) To limit the height of walls in which there are any windows, which are required to be provided by the rules as to habitable rooms, opposite to any land or building which is or is intended to be in a different occupation.

(*f*) To make the provisions relating to courts for admitting light and air to "domestic buildings" apply to offices and counting-houses.

(*g*) To make provision with regard to a window placed obliquely in a court or recessed.

To prohibit, except under certain conditions, the erection in ways laid out for foot traffic only of dwelling-houses of a greater height than the width of the way.

To provide that in new streets no building shall exceed in height the distance between buildings on opposite sides of the streets.

To make the provisions as to the height of buildings in streets of a less width than 50 feet apply to streets formed before 1862 as well as to those formed subsequently.

To prohibit the erection, and to control the height, of buildings (other than domestic buildings) within specified distance of buildings of the domestic class.

To require that all staircases shall be adequately lighted.

To make the minimum height of habitable rooms (not wholly or partly in the roof) 9 feet, instead of 8 feet 6 inches, as at present, and the height of habitable rooms (wholly or partly in the roof) 8 feet 6 inches instead of 8 feet as at present.

To provide that the minimum space that shall be left between the ground and the underside of the floor joists shall be 6 inches, and to require the provision of openings for ventilation, the minimum size of such openings to be 9 inches by 6 inches.

To provide that a habitable room construeted over a stable, coach-house, or harness-room communicating therewith, shall be separated horizontally and vertically from the stable by a solid concrete floor or partition, finished smooth upon the surface, properly supported, and of a minimum thickness of 6 inches.

To enable the Council to make by-laws with regard to the erection of houses on excavated sites and on sites which are damp and have been heavily manured.

The clauses dealing with these matters were drafted in consultation with us, and, in our opinion, contained proposals of great importance to the public health of the inhabitants of the administrative county; and we are strongly of opinion that the Council should take action at an early date with the view of securing legislation on the lines of these clauses. We recommend—

> That the Council do concur in the view that many of the provisions contained in the clauses of the London Building Acts (Amendment) Bill, which have been dropped during the present Session of Parliament, are of great importance from the point of view of the public health.

The County Council have agreed to the recommendation with which the report closes.

The Great Zimbabwe, Rhodesia.

Mr. Richard M. Hall, F.R.G.S., who recently returned from the two years' exploration of the Great Zimbabwe which he had undertaken on behalf of the Government of Rhodesia,* gave some account of his discoveries at the Society of Arts on the 5th inst. in a Paper entitled "Ancient Architecture at Great Zimbabwe, Rhodesia." The name "Zimbabwe" is derived from "Makuru Zimbabigi," signifying "The Great Buildings of Stones." The ruins of the ancient temples were known to the very early mediæval Arab traders, but from mediæval times until 1868 their existence was lost sight of. In that year they were rediscovered by Adam Renders, an elephant hunter, and in 1871 Dr. Karl Manch examined the ruins. Archæologists then ascertained that the archives of the Vatican and of Lisbon contained earlier information concerning them. The Great Zimbabwe, by its evident importance and great extent, was undoubtedly the ancient metropolitan centre for the whole of the country. The age of the Elliptical Temple of Zimbabwe, and of the associated ruins of a similar style of architecture and construction, is dated back to some period between 1600 and 1100 B.C. Dealing with the appearance of the ruins, and the plan, architecture, and construction of the buildings, Mr. Hall says:—

> Immediately on viewing the Great Zimbabwe for the first time every visitor, even the most casual, is greatly impressed by the extraordinary massive proportions of its grandly sweeping walls. Undoubtedly the Elliptical Temple is a most awe-inspiring structure. Its appearance powerfully suggests the Near East.
>
> The European student of architecture, to entertain any adequate idea of the oldest type of forts and temple-forts in Rhodesia, must first dismiss from his mind all conceptions of the distinctive features of Grecian, Roman, and Egyptian styles of architecture.
>
> I was assured by professors and students of Egyptian archæology that the plan, architecture, and construction of Zimbabwe finds absolutely no parallel or similarity with the plan, architecture, and construction of any known Egyptian building. This is obvious to anyone visiting Zimbabwe.
>
> In Rhodesia the ancient architecture provides no sculptured columns and ornate capitals, no arches and no basilica, but conical towers and monoliths enclosed within stupendous walls laid on an elliptical plan—all unroofed from the very date of their construction and all open to the light of heaven.
>
> So far as archæological researches lead, the ancient buildings in South Arabia—of Yemen, the ancient empire of Saba—alone present any parallel with those of Zimbabwe, and in several of their most important features of architecture an identity is believed to have been established.
>
> The plan on which the oldest of the Zimbabwe buildings throughout Southern Rhodesia are laid is always elliptical. Walls are built on curves, and the ends of walls, sides of entrances, and buttresses are rounded. The angular form of building is absent, and is only found in the case of structures of obviously much later periods.

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* Mr. Hall's report to the Government is embodied in his recently published work "Great Zimbabwe."

The walls are very substantially built with bases averaging from 7 feet to 16 feet in width, and are beautifully and most skilfully constructed, not only on the exterior faces, but in the internal portions. Levelling instruments must have been used at Zimbabwe.

Each wall has a lean-back or batter-back on either face. Thus the main east wall of the Elliptical Temple is 16 feet wide at its base, but at a height of 30 feet its summit is 8 feet in width.

The average batter-back of high walls of the oldest type is 1 in 10 to 1 in 8, though 1 in 6 is often met with in lower walls.

The building material employed at Zimbabwe is local granite in blocks, with faces averaging 9 by 7 inches. Many of the blocks have been rudely squared by the use of diorite hammers, some having been cut with metal tools.

No cement or mortar has been used in the construction of the walls, all these being of dry masonry. The ancients extensively employed a fine granite cement for floorings, steps and dadoes. In their more important dado work the dadoes have had an outer layer of whitish soapstone clay, brought to a high polish.

One extraordinary feature at Great Zimbabwe is the extent and number of passages, amounting, so far as they have been discovered, to a length of over 5,000 feet, of which over 2,000 feet in length were discovered during the recent explorations. The heights of the side walls are from 5 feet to 30 feet, while some are sunk below the level of the ground. All are very narrow, some being only shoulders' wide.

Each temple has an important passage; these are conjectured to have been the approach of the priests to the inner shrines or sacred enclosures. The lowest floors of these passages yielded great quantities of religious emblems and articles of gold.

At Zimbabwe the ancient architects laid down a splendid system of drainage, which must have been contemplated before the outer main walls were erected. The buildings were open and never roofed, but by this system the flooding of the temple during sub-tropical rains was prevented.

The late Frank Caws [*F.*].

By the death of Mr. Francis Edward Caws, of Sunderland [*F.*], the profession, and the North of England in particular, have lost not only an active and distinguished architect, but also one on whom they relied to a considerable extent in the upholding of the dignity and status of the practice of architecture in the neighbourhood of Northumberland and Durham.

Mr. Caws died at his residence in Sunderland on the evening of the 8th April from acute pneumonia, after an illness of only a few days, having been in London so late as the Monday previous to his death.

Mr. Caws was fifty-eight years of age, and was born at Sea View, in the Isle of Wight. He served his articles in Ryde, after which he had a course of instruction at South Kensington, where he was very successful, gaining several important prizes and showing considerable artistic power. He then held for a time an appointment under the N.E. Railway Co. at Darlington, and from there went to Wolverhampton, ultimately, however, coming to the office of Messrs. Joseph Potts and Son, architects, in Sunderland as manager. After being with them for a short period he commenced practice in Sunderland, which he continued until his death.

Mr. Caws was elected a Fellow in 1893. He always evinced a lively interest in the Northern Architectural Association, and was twice President of that body—in 1901 and 1902—besides holding the offices of Vice-President and member of the Council.

During his career he designed and carried out many important buildings in Sunderland and the North of England generally.

He was of a specially inventive and experimental turn of mind, not caring what trouble he was put to if his theories could be proved practically useful. He invented and developed a scheme of fortified concrete construction,* and used it in several buildings known to the writer long before the system now generally in use was heard of.

He was well known in the shipbuilding world by an invention by which he could ascertain with small-scale models the given speeds at which a ship would travel with different loads and various horse-power of engines. He also designed and erected the huge sheds at Messrs. Swan and Hunter's shipbuilding yard on the Tyne, under one of which, it is interesting to note, is now being built the largest vessel in the world.

In him were embodied what was necessary to make the highest type of architect: he was a skilful engineer and mathematician, and a thorough artist in the widest sense of the word. He also had a keen appreciation of literature in its highest types, and was himself a poet of no mean order.

He carried on a considerable amount of arbitration work, as the confidence with which he was regarded made disputants very willing to accept him as a mediator.

He was a man of modest and unassuming personality, simple and sincere, and a true friend. He had deep religious instincts, and carried on a noble philanthropic work in Sunderland among the poorer class of boys, ultimately forming the "Waifs' Rescue Agency and Street Vendors' Club." Generally his sympathies were of the widest, and he was ever ready to assist in objects for the betterment of the poorer classes.

The respect in which he was held by his brother architects is evinced by the fact that no fewer than nine members of the Council of the N.A.A.—apart from many other architects—followed him to the grave.

GEO. T. BROWN,
Vice-President N.A.A.

At the Institute last Monday, after the formal announcement of the sad event above recorded, and an appreciative reference by the Hon. Secretary to Mr. Caws's valued contributions to the JOURNAL, the Meeting passed a resolution recording its deep regret at the loss the Institute had sustained, and authorising a letter to be sent to his widow and family sympathising with them in their bereavement.

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* See "Concrete Floors," by Frank Caws. JOURNAL R.I.B.A. Vol. VII. 3rd series, p. 189.

As stated above, Mr. Caws was elected a Fellow of the Institute in 1893. It was characteristic of him that, although when he first sought admission to the Institute he was a middle-aged man and a practitioner of more than twenty-five years' standing, he nevertheless elected to go through the ordeal of the Associates' Examination, which he passed with credit, before sending in his application for the Fellowship.

During his two years' Presidency of the Northern Association Mr. Caws represented that body on the Institute Council. Busy man as he was, and living in the far-away Northern town, his opportunities of visiting the London centre were few. He was, however, a staunch and loyal friend of the Institute, was keenly interested in its concerns, and on occasion gave very happy expression to his views on the burning questions of the moment in the Institute JOURNAL. His "Plea for Sweet Reasonableness" in connection with the Fellowship question [JOURNAL, Vol. IV. 1896, p. 129] is an instance in point.

The late Samuel Joseph Nicholl [*A.*].

By the death at 1 Caversham Road, N.W., of the late Samuel Joseph Nicholl on 21st March last, in his seventy-ninth year, we lose one of the last survivors of the band of enthusiastic and devoted students who in the forties, and later in the early sixties, fired by the teachings and example of that master craftsman, Augustus Welby Pugin, engaged themselves in the study of mediæval art and architecture. Born in London on 29th March 1826, the subject of this memoir was apprenticed to his godfather, Joseph J. Scoles, a former Honorary Secretary of the Council, and a learned and accomplished architect, who designed the Church of the Jesuit Fathers, Farm Street, Berkeley Square, W., and many important works in London and the provinces at that period.* In 1843 he was admitted a student of the Royal Institute of British Architects, gaining in 1845 the medal of honour for the Institute Prize Essay of that year, and in 1847 was elected an Associate. He was awarded in 1860 a medal by the Society for the Encouragement of Fine Art, and in 1872 gained a prize of £50 for a design for a challenge cup for the Crystal Palace Music Meetings.

Early in his career he assisted the late J. J. Scoles, and in 1853 the late P. C. Hardwick. From 1854 to 1869 he collaborated with the late Thomas John Willson in the designing and carrying out of many important churches and buildings. Amongst these are the chapel and lodge, St. Patrick's R.C. Cemetery, Lower Leyton; St. Charles' Church, Upper Ogle Street, Marylebone, London; Church of the Sacred Heart, Accrington; St. Mary's Church, Turnham Green; St. Catherine's Church, West Drayton, and a church at Bilbao, Spain; an orphanage at N. Hyde; R.C. mortuary chapels in the cemeteries of Kensal Green, Clitheroe, and Leytonstone; and many schools, conventual and other buildings, including memorials at Portsmouth to Admiral Sir Charles Napier, and of the cruise of the "Chesapeake." The partnership was under the style of Willson and Nicholl, and after its termination the late Mr. Nicholl did much important work, including churches at Oldcotes, near Worksop, and Wellingborough, the restoration of the ancient chapel of St. John's Hospital, Northampton, and a new Bishop's House; St. Francis Home, Shefford; Wandsworth Training School; Altars and decorations to the chancel, St. Walburga's Church, Preston; and—a notable work—the transformation of the old galleried chapel of the Jesuit Fathers, Fishergate, Preston, into a noble basilican church, with a striking exterior (clothing the old walls) of red brick and terracotta, treated with much skill and artistic knowledge.

The deceased architect was a good draughtsman and an accomplished antiquary, though of a retiring disposition. His observations and communications on architectural and antiquarian topics at the meetings of this Institute are found from time to time in the pages of the JOURNAL: one as recently as 21st November 1903, a memoir of his old friend and partner, the late T. J. Willson; and the last on 12th November 1904, on Chancel Screens and Screenwork. He took a lively interest in the work and ideals of the Guild of St. Gregory and St. Luke, of which he was the active director for many years.

He passed away, as above recorded, on 21st March last after a few days' illness borne with fortitude, retaining his consciousness until the end came.

He was twice married, and leaves a widow and only daughter and many friends to mourn his loss.

CHARLES HADFIELD.

Another of the faithful band of good Gothic architects of the last century has passed away full of years as of honour—Samuel Joseph Nicholl, whose name and works are better known to Roman Catholic churchmen than probably to others, for most of his recent work was done for that religious body. But in the fifties and sixties of the last century, in the office of Mr. P. C. Hardwick at Henrietta Street, Cavendish Square, very much good work was done by Mr. Nicholl, as the chief and best designer of the mass of Gothic construction, ecclesiastical and civil as well as domestic, carried out there. For many years Mr. J. J. Scoles was Honorary Secretary to the Institute of British Architects, and Nicholl was his pupil, and of course connected himself with the Institute, being admitted Student in 1843 and a Medallist in 1845–6. But subsequently he took little or no part in the work of the Institute of British Architects. In those days there was no "Royal" prefix, but few prizes, and no examinations. Only a small group of earnest men meeting in a moderate-sized house in Grosvenor Street under the presidency of the Earl de Grey, constituted the Institute; but it proved the nursing home of the best architects and the best work of the century.

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* J. J. Scoles succeeded to the practice of Ireland, a well-known London architect extensively employed by the nobility and gentry early in the last century. He was a connection of the Nicholl family.—C. H.

In the office of Mr. Hardwick, Nicholl was the one looked up to by all the best pupils, and his help and encouragement long after they had left the office of "Hardwick and Father," as we used rather irreverently to say sometimes, was sought after and appreciated; amongst them Arthur J. Blomfield and F. P. Cockerell (whose beautiful portrait by Watts was only a few weeks ago on the Academy walls), T. Roger Smith and C. L. Eastlake; while I was indebted to his friendly help and advice during the first years of my professional work. My seat was the next to his in the office, and he delegated work to me as a sort of sub-pupil, to my great profit and joy. But besides his own work I never knew him fail to interest himself in any good work coming under notice and never forcing his own views or his more mature ideas upon younger men who asked his good help. A more kindly critic there could not be, or a more devoted adherent to the Puginesque ideas of those days. Albeit he knew what was good work, and always stood up for genuine artistic Gothic as opposed to the wild, unrestrained sort of architectural work which was afterwards carried out under that appellation, to the annoyance of "Gothic men" and to the temporary discredit of the mediæval styles as such. I particularly remember an enthusiastic young architect coming in one day—a co-religionist, and full of the cathedral and church traditions of mediæval times—who set us young Gothicists all aflame. This was Brewer, whose excellent works were recorded in *The Builder* on the occasion of his death recently. He was then giving up the practice of architecture for painting, and he came to Nicholl for advice and encouragement.

The times I refer to—the fifties—were worth living in if only for the thrill of the "Renaissance of true principles" of art and building compared with what had been in vogue when "shams" and "cement" held sway early in the century.

Pugin was working with Sir C. Barry on the Houses of Parliament, and "Contrasts" had denounced the building of a Doric gateway in Euston Square only as a monument of expenses. But this was Mr. Hardwick the father's work, who had only just completed with the help of the son, Mr. P. C. Hardwick, Lincoln's Inn Hall, &c., which was the original guiding line of the work in the office that our friend S. J. Nicholl had to follow and carry on, while I had the honour to receive his instructions and advice. Neither Nicholl nor Sir Arthur Blomfield ever left these good Gothic grooves, I believe. F. P. Cockerell never really followed them, having in him the wonderful classic tradition and splendid draughtsmanship of his father the Professor, our first professional President of the Institute.

Others of us have had to carry out our life's work in varying style to suit circumstances and fashions, but always with the "true principles" of truth *v.* sham, and beauty *v.* ugliness, in mind—enjoying our work to the full only when some real piece of modern Gothic was possible in church, chapel, or school, or restoration of ancient work.

Such are a few reflections on the life's work of our good friend. *Requiescat in pace!*

CHAS. FORSTER HAYWARD.

ADULTERATED PIGMENTS.

Heriot-Watt College, Edinburgh: 11*th April* 1905.

To the Editor of the JOURNAL R.I.B.A.

DEAR SIR,—I do not know if your readers are aware of the very interesting movement which is going on amongst some of our leading painters and decorators at present with a view to investigating the quality of the pigments used for decorative purposes, and so protecting themselves and their customers against adulteration and against the supply of pigments of a fugitive character.

This movement has, I believe, resulted in the appointing of a committee of leading painters and decorators.

The subject is one in which architects are so vitally interested that I am sure I need no excuse for bringing it before your readers.

Not only has the adulteration of pigments to be guarded against, but also the introduction of many new pigments prepared from the coal-tar dyes, which are very fugitive in character, and in many cases apt to stain and bleed through coats of paint laid over them. There seems to be no reason why, just as the farmer buys his artificial manure on an analysis, and insists upon its being of guaranteed composition, the house-painter should not have full information supplied him by the manufacturer as to the composition of the paint he is selling, and, if it is a new pigment, its behaviour under certain conditions.

If a firm could be found that would supply a guaranteed article of known composition, I have no doubt that architects would welcome it, as they would then be able in their contracts to insist upon this firm's goods being supplied. In fact, the whole painting and decorating trade requires to be put on a scientific basis. Much has been done in many trades in this direction in past years, and therefore I think your readers should be alive to what is going on, and ready to take advantage of any progress that is made towards this end.

Yours sincerely,
B. P. Laurie, *Principal.*

REVIEWS.

MR. PHENÈ SPIERS'S ESSAYS.

Architecture East and West: a Collection of Essays written at various times during the last sixteen years. By R. Phenè Spiers, F.S.A., F.R.I.B.A. Now first brought together and issued with further illustrations as part of a Testimonial to the Author. [*Published for the Committee of the Spiers Testimonial by B. T. Batsford, 94 High Holborn, London. Price* 12*s.* 6*d. net.*]

Certainly one of the happiest thoughts in connection with the presentation a few weeks ago of a testimonial to Mr. Spiers was that which has resulted in the present volume. It was felt that, besides the more personal and individual instruction and help to the architectural students who have passed under his care, there was a large body of material, collected with the knowledge to be expected from an expert, and set forth by him from time to time in journals, magazines, or by way of lectures delivered before various Societies. While all of this was valuable and informative, and of much interest to the student, those promoting the testimonial felt that some of it, in especial, they would not willingly let die. They further might be sure that it would only be characteristic of Mr. Spiers if he welcomed the non-personal form of this portion of the testimonial, and that he would hail the reappearance, for the benefit of a wider circle of students, of some of those essays in which he has dedicated to others so much of his thought and study.

Mr. Spiers has himself assisted in every possible way in the production of this reprint, but he has already told us that he places the responsibility for the publication on the shoulders of his friend Professor Lethaby. The extraordinarily wide area of architectural history covered by the nine essays, and the largely varying calls these make upon their author's critical judgment, seem to indicate that their editor has been wisely governed in his selection by a desire to illustrate the many sides Mr. Spiers possesses as historian and critic, and to suggest the several interests of his literary life. But this very breadth of range constitutes a difficulty in noticing the work so as in any way to do it justice. To dwell barely and insufficiently upon one only of the subjects on which he writes might, indeed, be possible in the permissible space; but this meagre criticism would, even then, leave the other eight essays * untouched upon, and would diminish the suggestion of that wide knowledge in so many branches which is the principal note struck by this book.

It is enough to recognise that more than one of the essays show Mr. Spiers on territory he has made, so far as English authors are concerned, particularly his own. He has, for example, done more than anyone else to put before students in this country the results of M. and Mme. Dieulafoy's explorations. In his review of their work at Susa, and again in his essay on Sassanian Architecture, he has not merely summarised their results while accepting them as absolute, but has weighed their theories in a logical and critical balance, and has, where he thought fit, differed from them as to their conclusions.

The essay on Byzantine Art in Italy is all the more welcome, as in its present form it incorporates the author's paper on St. Mark's, Venice, read before the St. Paul's Ecclesiological Society. This extremely valuable account of the history of the building is now available for a larger circle of readers. Indeed, it may be suggested that it would be of the greatest use to the student in Venice—and that entirely "without prejudice" to the present volume—if Mr. Spiers might see his way to arrange, say, with Messrs. Ongania, of Venice, for its being procurable in pamphlet form in that city. This essay may be studied in connection with that on the Domed Churches of Périgord and La Charente, and Saint-Front of Périgueux in particular. In this Mr. Spiers leaves MM. de Verneilh and Lambert and the other French antiquaries little of their theory of the Byzantine origin of the latter building beyond the copying of the plan of St. Mark's up to the springing of the arched structure. He seems very clearly to prove the six points by which he supports his theory of the essential difference between the Byzantine and the French dome upon which his case depends.

No volume could claim to be characteristic of Mr. Spiers as an author and teacher which did not allow him to treat of Mahometan and Saracenic work. In both the first two essays he devotes a good deal of his consideration to the question of the origin and construction of the stalactite or honeycomb vaulting peculiar to that style. The paper on "The Great Mosque of Damascus" is valuable as embodying in one article of convenient length all the available information as to a building little of the interest of which seems likely to survive the restorations following the fire of twelve years ago.

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* The contents of the book are as follows:—Mahometan Architecture; Stalactite Vaulting, its Origin in Saracenic Architecture; Sassanian Architecture; M. Dieulafoy's Work on the Explorations at Susa, 1893; Byzantine Art in Italy; Saint-Front of Périgueux and the Domed Churches of Périgord and La Charente; Some Churches in Palestine and Sicily; the Great Mosque of the Omeiyades, Damascus; and the Influence of Greek Art on the Persian Order.

C. H. T.

The volume does all the more justice to the author and his views in that it is helped by the inclusion of many illustrations which the essays in their original form did not possess. It is excellently printed and produced.

C. Harrison Townsend.

EIGHTEENTH-CENTURY BATH.

The Eighteenth-century Architecture of Bath. By Mowbray A. Green, A.R.I.B.A. 4to. Bath, 1904. [*George Gregory.*]

A monograph of the architecture of a town, or of any particular phase of art, is always an interesting object of study; and this is especially so where, as in the case of the book before us, the two are combined.

The author, Mr. Mowbray Green, has the advantage of being a resident of Bath; and it is evident from this well-written and charmingly illustrated book that he knows every nook and corner of the city, and that he has carefully studied his subject.

The architecture of Bath is almost entirely confined to that of the eighteenth century, the only earlier buildings still in existence being the interesting remains of the Roman baths, the fine early sixteenth-century abbey church, and a few late seventeenth-century houses; and it is of rare occurrence to find a town, as we do here, with all its buildings practically of one period, most of them being of architectural importance and of considerable artistic merit.

It was probably owing to the successive visits of Charles II. and Queen Anne that the hot-water springs of Bath, to which the town owes its existence, were brought into fashionable notice again; and the arrival of that energetic master of ceremonies, Richard (Beau) Nash, at the city in 1704 was the commencement of a century of erection of palatial buildings, carried out chiefly by John Wood the elder and younger under the patronage and influence of Ralph Allen; and the names of these four men will be handed down to posterity as the "makers of Bath," though there were, of course, other architects at work there during the century both before the arrival of John Wood the elder in 1725, and later in the century after his death and that of his son.

Neither of the Woods appears to have travelled abroad, but they must have studied the architectural books of the period with advantage, as their work, which is strictly Palladian in character, is always well designed, with an absence of vagaries, the result of their close adherence to orthodox examples, and usually with refined detail. Their compositions generally consisted of a rusticated basement carrying an order of two stories. The effect of this treatment is bold and impressive, though it necessitated large scaled detail. In building the Circus this treatment was varied by adopting three superimposed orders; but the result, however, is not, I think, so satisfactory as the bolder treatment, and is certainly very monotonous. Mr. Green justly points out that one of the chief successes of both the Woods lies in their method of laying out streets and neighbourhoods under one comprehensive scheme, and to this conception Bath owes its dignity.

Although the architectural effect of the elevations and the internal decoration of their houses is good, the planning, it must be confessed, leaves much to be desired from a modern standpoint (a defect not confined to houses in Bath), and the rooms are often gloomy owing to the heads of the windows being kept some feet from the ceilings to comply with the exigencies of the external elevation rather than with the principles of hygiene.

On pages 129–134 Mr. Green gives a most interesting insight into the method adopted by the architects of the period in the carrying out of their work, reproducing some working drawings, specification, and contract for a house of some importance built by Wood in 1748. The plans are carefully drawn in outline and figured, and the very concise specification is written on the drawings themselves, the description of the finish of each room being written therein on the plans. The architect and builder must have had mutual confidence in each other with so sparse a specification, more especially as in the contract the latter undertakes to complete the house, not only according to the directions on the plans, but also to the further directions of the architect.

Amongst the later architects at work was Robert Adam, who built the graceful bridge with its shops over the river Avon for Sir William Pulteney, which was unfortunately spoilt later by the addition of another, low, story over the shops. Thomas Baldwin also carried out some very good work, including the Guildhall and the King's Bath; and in his work the influence of Adam is so noticeable that one wonders whether he had at any time worked under him.

With the exception of Adam, the architects would appear to have been all local men. Mr. Green mentions that Nathaniel Dance is said to have designed the north front of the New Theatre. Nathaniel Dance, however—afterwards Sir Nathaniel Dance Holland—was a painter, and it was his youngest brother, George Dance, R.A., the architect of Newgate Prison, who probably carried out some work at this theatre, as amongst his drawings in the Soane Museum are some sketches for this front, as well as for the internal decoration of the theatre.

Mr. Green has been fortunate in obtaining excellent photographs of two interesting buildings now demolished, and as doubtless Bath will in course of time follow the example of other big towns, and commence to improve itself out of existence, the numerous full-page photographs with which his book is illustrated will render it of great value hereafter. He also reproduces five old plans of the city at different periods: these unfortunately, however, are not very clear, and are bound up with the text; a detached, clearly drawn plan of the present-day Bath, with the buildings and streets referred to in the text indicated on it, would have been of great advantage in reading the book.

At the end of the volume are an interesting series of eighteenth-century tokens connected with Bath, giving contemporary views of various buildings: amongst them is one of the Pulteney Bridge; and as it is there shown in its altered state, the additional story to the shops must have been added not long after the bridge was erected.

In conclusion, the book which Mr. Green has produced is one that cannot fail to be of interest to the architect and antiquary, and its publication should be a great incentive to students to visit this noble and charming city.

Walter L. Spiers.

ARBITRATIONS.

Arbitrations, by the late Professor Banister Fletcher. Third Edition, revised and largely rewritten by Banister F. Fletcher [F.], F.S.I., and H. Phillips Fletcher [F.], F.S.I. &c.

The practical little handbooks written by the late Professor Banister Fletcher are in constant demand; the result is that from time to time new and enlarged editions appear, ably edited by his sons, Mr. Banister F. Fletcher and Mr. H. Phillips Fletcher.

This is, without doubt, the age of arbitration, from international difficulties downwards, and the Act of 1889 should be familiar to every architect. Many books have been written on the subject, and this is certainly one of the best. Disputes in connection with building matters are carefully considered by the authors, and all the leading cases are noted. It is well up to date, there is a good index, and an alphabetical arrangement of all cases.

It is to be regretted that architects are not more frequently appointed as arbitrators; from experience it certainly appears that solicitors prefer a surveyor or an engineer; they say there is a tendency with architects to try to satisfy both parties, and also to divide the costs. If a case is taken to the Law Courts, as a rule, the costs follow the event; but architects so often make the winning party pay his own costs—a rare event at the Law Courts. It is a good rule to insist that the submission must contain a clause to prevent this injustice.

The authors refer to their book on the London Building Act with reference to party structure matters, but this subject might well receive fuller consideration in a book on arbitration. Many architects are not aware that the Arbitration Act applies to procedure under Part VIII. of the former Act, and oppose the idea of evidence, often so necessary in party structure proceedings.

Architects should strongly protest against any building dispute being submitted to a barrister. The official referees are constantly hearing building cases, and have considerable knowledge of technical matters; but the writer knows from experience the deplorable result of a submission to a barrister who could not appreciate the difference between "measured" and "day-work" accounts.

The Appendix contains many useful forms of submission, notices, awards, &c.

Sydney Perks.

ALLIED SOCIETIES

DEVON AND EXETER ARCHITECTURAL SOCIETY.

Annual Meeting.

The Annual Meeting of this Society was held at Tavistock on the 8th April, Mr. Charles Cole, President, in the Chair. The Annual Report, which was read by the Hon. Secretary, stated that the membership had increased to eighty-seven. Eight Council and five General Meetings had been held, and some useful work had been done in the interests of the profession; but the Council regretted that the response from principals was insufficient to warrant their embarking upon a scheme of lectures in connection with the London Architectural Association. The Society was indebted to that Association for making arrangements whereby students of the Devon and Exeter Society might join the School of Design. Visitors' criticisms would be written upon the drawings; and at the close of the session Mr. G. H. Fellowes Prynne would visit Exeter and criticise a selection of the best designs, which would be exhibited at Exeter. The Council regretted the absence of enthusiasm among the Associates, as evidenced by their rare attendance at meetings, and by the lack of competition for the prizes offered by the Society. For the measured drawings only one set was submitted, but they were deemed worthy of the prize, which was accordingly awarded to Mr. Harold S. Shires. No sketches were submitted for the Hon. Secretary's prize. The Council expressed their agreement with a resolution sent them from the Sheffield Society, that it was desirable that each Allied Society should be represented each year on the Council of the R.I.B.A. The President of the Society had been appointed a member of the Seventh International Congress of Architects to be held in London in 1906. A discussion on the Ownership of Plans as affected by recent cases had been opened by the Hon. Secretary, and it was resolved that, it being the custom that the drawings were retained by the architect, the R.I.B.A. should be asked to take steps in the matter. The Society had had a discussion on the "Standard Sizes of Materials," and the Secretary of the Clayworkers' Institute had been asked to bring before the local brickmakers for their adoption the R.I.B.A. standard size of bricks. Mr. A. S. Cross, M.A. [*F.*], and Mr. George Hubbard, F.S.A., had read Papers before the Society upon the subject of the "Statutory Qualification of Architects," and the Society had recorded its hearty approval of the principle involved, and urged the Institute to press forward a Bill to bring about such statutory qualification.

The President, Mr. Charles Cole, in the course of his valedictory address on the occasion referred to the subject of rural by-laws, and said it would almost seem that the model by-laws had been drafted by men who had never done any practical work at all; and as all local authorities copied them to a great extent, we got very curious anomalies. They must not introduce any clauses suitable to their locality or make any of them at all elastic, or the Board would refuse to sanction them. Hence it was that a little one-house place had the same by-laws as a large city, which was preposterous. The effect of some by-laws was that in large towns many old buildings were not pulled down and rebuilt because, in addition to light troubles and party-wall questions, the unfortunate architect had to deal with the local authority, whose views were often quaint. If there were any elasticity, many a client would rebuild entirely, instead of "tinkering," by taking out a floor, putting up a new front, and so on, often involving a great deal of trouble and anxiety and a liberal use of steel or ironwork. Perhaps one of the most irritating features of the whole thing was that where a local authority was willing and anxious to frame sensible by-laws to suit its locality the Local Government Board would have none of them.

The officers for the ensuing year are Mr. B. Priestley Shires [*A.*], *President*; Mr. Harbottle Reed, *Vice-President*; Mr. A. J. Pinn [*A.*], *Hon. Secretary*; Mr. Octavius Ralling, *Hon. Treasurer*; and the following have been elected to fill vacancies on the Council:—Messrs. A. J. Lucas, J. Jerman [*F.*], and O. B. Peter [*F.*].

MINUTES. XII.

At the Twelfth General Meeting (Ordinary) of the Session 1904–5, held Monday, 17th April 1905, at 8 p.m.—Present, Mr. John Belcher, A.R.A., *President*, in the Chair, 37 Fellows (including 15 members of the Council), 42 Associates (including 2 members of the Council), 2 Hon. Associates, and visitors: the Minutes of the meeting held 3rd April 1905 [p. 376] were taken as read and signed as correct.

The Hon. Secretary, having announced the decease of Francis Edward Caws, of Sunderland, *Fellow*, moved and it was thereupon

> Resolved, That the Meeting do record its deep regret at the loss the Institute has sustained by the death of Mr. Francis Edward Caws, *Fellow*, and that a letter of sympathy and condolence with them in their bereavement be sent from the Institute to his widow and family.

The following Associates attending for the first time since their election were formally admitted and signed the Register—viz. Horace Charles Fread and George Alfred Johnson.

A Paper by Mr. Mervyn Macartney on Garden Architecture having been read by the author and illustrated by lantern slides, a discussion ensued and a vote of thanks was passed to him by acclamation.

The proceedings then closed, and the meeting separated at 9.45 p.m.

REPORT OF THE LIGHTNING RESEARCH COMMITTEE.

PREFACE.

By Sir Oliver Lodge, F.R.S.

SINCE the report, many years ago, of the Lightning Rod Conference, knowledge of the subject has considerably increased, and the effect of self-induction, which then was completely ignored, has been taken into account and understood. The main differences between what is recommended to-day and what was considered sufficient then depend on the recognition of the influence of self-induction or electrical inertia. Then electricity was treated as if it had no inertia, and as if all that was necessary was to get it from the clouds to earth as quickly and easily as possible by the shortest path: which may be called the drain-pipe theory. It was supposed that it would always take the easiest path, and that the easiest path would protect all others. Attention was directed to the quantity of electricity which had to be conveyed down, and to nothing else.

Now, however, it is perceived that it is not so much quantity of electricity that has to be attended to, as electrical energy; that this electrical energy is stored between clouds and earth in dangerous amount; and that our object should be to dissipate it, not as quickly, but as quietly as possible. A sudden dissipation of energy is always violent. No one in his senses wishes to stop a flywheel or a railway train suddenly; sudden or hasty dissipation is not what is wanted. Gun-cotton possesses a store of potential energy locked up in it to a dangerous extent: if it be dissipated suddenly, as by percussion, a violent explosion results; but if it be dissipated gradually, as by a flame, the energy is got rid of without much damage, beyond the liability to fire. An armour-plate may be able to stop a cannon-ball quickly, but a heap of sand or loose earth does it more safely, because more gradually.

So it is exactly with the store of energy beneath an electrified cloud, or between one cloud and another. A lightning conductor of perfect conductivity, if struck, would deal with the energy in far too rapid and sudden a manner, and the result would be equivalent to an explosion; a conductor of moderately high resistance, such as an iron wire, would get rid of it in a slower and therefore much safer and quieter manner; though with too thin a wire there may be a risk of fire.

The rush in any case, however, is likely to be rather violent; and, like an avalanche, it will not take the easiest path provided for it, as if it were a trickling stream, but will crash through obstacles and make its own path, some portion of it taking paths which would be quite unexpected. Hence no one path can be said to protect others, and the only way to protect a building with absolute completeness is to enclose it wholly in metal. An invisible cage or framework of iron wires, however, descending vertically down its salient features, with the utilisation of any metal in its construction, suffices for all practical purposes, unless the building is a powder magazine.

The effect of *points*, and of rain also, in gradually dissipating a charge, and thereby contributing to safety, has long been understood; but the feature which has not been known is that there are cases when points are wholly inoperative, viz. when the energy is stored between cloud and cloud, instead of between cloud and earth, and when the initial discharge takes place from one cloud to another; then the lower cloud is liable suddenly to overflow to earth through a region in which there was no previous preparation, and where any number of points, or a rain shower, or any other form of gentle leak, would have been quite inoperative. Then can a violent discharge occur even to the sharpest point; and a hot column of air, such as rises up a chimney, is even preferred to a conductor. These are the flashes against which points and rain are no protection, and these are probably those which do the most damage to protected buildings. But it must be understood that when a flash does occur through a building, it matters little which kind of flash it is—both can be equally sudden and violent—but if the building is well provided with points, the first or prepared kind is not likely to occur, save in exceptional cases: the dangerous liability is then the sudden or overflow variety of flash.

These, then, are the two points of novelty:

1. The possible occurrence of a totally unprepared-for and sudden flash in previously unstrained air, by reason of overflow from a discharge initiated elsewhere: what is called the B spark, occurring as the secondary result of an A spark.

2. The effect of electrical inertia or momentum, so that the discharge is not a simple leak or flow in one direction, but a violent oscillation and splash or impulsive rush, much more like an explosion, and occurring in all directions at once, without much regard to the path which had been provided for it; no more regard, in fact, than is required to enable the greater part of it to take the good conductors, and to prevent any part of it from being able to enter a perfectly enclosed metallic building.

Even a small lateral fraction of a flash is able, however, to ignite gas if there is a leak, or even to *make* a leak at a "compo"-pipe where it is crossed by a bell wire, and then ignite it; hence, after a building has been struck, careful watch should be kept for some time against the danger of fire.

The amount of protection to be allotted to any building is no doubt analogous to the question of insurance generally; that is to say, the amount of premium it is desired to pay may be compared with the capital at stake and the risk run; and this is doubtless a matter for individuals and public bodies to consider for themselves. What the Committee can do is to make a study of cases of damage occurring to buildings which on the old lines were supposed to be protected, to tabulate them as below, and to ask for carefully recorded observations; they can also draw up such hints and suggestions as may be of use to architects whose clients desire their buildings to be protected in a more thorough, but not necessarily a more expensive, manner.

These objects, and these attempts at being useful, explain the existence of the present report.

PROCEEDINGS OF THE COMMITTEE.

Since the issue by the Lightning Rod Conference, in the year 1882, of the Code of Rules for the Erection of Lightning Conductors, which had been based on the results of an exhaustive inquiry extending over three or four years, no official record has been kept of disasters resulting to buildings from lightning stroke. The protective measures advocated by the Conference were understood to be in general adoption throughout the country, but no means were available for testing how far they had been efficacious in preserving buildings from injury. Numerous and serious cases of damage, however, had occurred to buildings supposed to be properly protected, and the feeling gained ground among those who were studying the subject that the system had failed to realise all that had been expected of it. This feeling was given expression to by H.M. Inspectors of Explosives in their Report for 1900. Commenting upon the disasters at the factories of the Nobel Explosives Company at Krummel and Hamm, Germany, the Inspectors stated that "these accidents have done much to confirm a feeling of distrust which has for some time been growing in our minds as to the absoluteness of the protection afforded by conductors erected in accordance with specifications laid down by the Lightning Rod Conference of 1882; and they go far to confirm on a large scale the interesting and instructive laboratory experiments of Dr. Oliver Lodge."

The difficulty experienced in obtaining accurate and intelligently rendered information as to the effect of lightning-strokes on buildings was referred to by Mr. Killingworth Hedges in his Paper on "The Protection of Public Buildings from Lightning," read before the Royal Institute of British Architects in April 1900. Ultimately, at the instance of Mr. Hedges, the Lightning Research Committee was formed by the Councils of the Royal Institute of British Architects and the Surveyors' Institution, with the object of obtaining trustworthy information on disasters from lightning as affecting buildings, of investigating the causes of the failure of lightning conductors to protect, and of suggesting, if possible, improved means of protection.

As first formed, the Committee was constituted as follows: Mr. John Slater, B.A., and Mr. H. Heathcote Statham, appointed by the Council of the Royal Institute of British Architects; Mr. A. R. Stenning and Mr. Arthur Vernon, appointed by the Council of the Surveyors' Institution; and Mr. Killingworth Hedges, M.Inst.C.E. A meeting-room, on the premises of the Royal Institute of British Architects, was kindly placed at the disposal of the Committee by the Institute Council.

The first meeting of the Committee was held on the 22nd January 1901, and as a result of a resolution then passed the following gentlemen were asked and consented to serve on the Committee: Sir Oliver Lodge, F.R.S., Principal of Birmingham University; Major-General E. R. Festing, C.B., F.R.S., Director of the Science Museum, South Kensington; Mr. J. Gavey, C.B., Engineer-in-Chief of the General Post Office; Mr. W. N. Shaw, F.R.S., appointed by the Royal Meteorological Society; and Mr. W. P. Goulding, F.R.G.S., F.S.I.

Mr. Killingworth Hedges, at the request of the Committee, consented to act as Hon. Secretary; and Mr. G. Northover, a member of the R.I.B.A. staff, was appointed Secretary.

Funds for carrying on the work of the Committee were provided as follows:

From the Royal Institute of British Architects and the Surveyors' Institution, the sum of 25*l.* per annum respectively for three years;

From the Government Grant for Scientific Investigations (administered by a Committee of the Royal Society), the sum of 20*l.*;

From the Royal Meteorological Society, the sum of 5*l.* 5*s.*

In order to obtain with as much exactitude as possible the information desired, and to save observers the trouble of furnishing details that would be valueless for the purpose of the inquiry, and also with a view to the more convenient tabulation thereafter of the facts reported, the following questions were drawn up and printed on one side only of a sheet of foolscap, the opposite side bearing corresponding numbers, and being left blank for the answers:—

1. *Name of building struck, and for what purpose used.*
   (A photograph taken after the disaster would be useful.)
2. *Date and hour of occurrence; name of place and county.*
3. *Description and situation of the building, and height above sea-level.*
   (Give particulars as to its position with regard to other buildings and high trees, and its propinquity to any wells.)
4. *Was rain falling when building was struck? If not, did rain precede or follow the stroke, and at what interval?*
5. *Was the building provided with lightning rods? If so, state number, position, height above roof, material (both of rod and staples), shape, sectional area, how finished at top and at bottom, condition of ends after flash*—i.e. *whether melted or blunted.*
   (A sketch plan should be made, which should aim at being a sort of Röntgen-ray representation, the metal-work being shown a different shade from the brick and stone work.)
6. *Was the conductor continuous? Describe the earth-connection. When was the conductor last examined and tested? Has the building been previously struck?*
7. *Nature of soil.*
8. *State fully the effect on the building; if any portion was set on fire; also if any damage occurred to metal-work, such as bells, rain-water and other pipes, electric bells or telephones, &c.*
9. *State distance (vertical and horizontal) of any portion of the building affected by the lightning from the nearest point of the conductor.*
   (If stones &c. were displaced, state to what distance.)
10. *State materials of roof coverings, and position of gutters and down-pipes. Was the conductor in contact with any other metal?*
11. *Were there any metal cresting, weathercocks, finials, or flagstaffs? If so, state distance from and height above conductor.*
12. *If the conductor was struck, state whether the damaged portions can be obtained for examination.*

These questions were issued at once to observers, in order that they should have them readily available when opportunity arose for using them.

To enlist the co-operation of persons competent to aid the Committee by the provision of material for the inquiry, 5,000 copies of the following Memorandum were distributed through the medium of the respective institutions to members of the Royal Institute of British Architects, the Surveyors' Institution, and the Royal Meteorological Society:—

Having regard to the risk of damage by lightning to which our most valuable and historical buildings and monuments are liable, and against which existing systems of protection do not appear to provide sufficient safeguards, the above Committee has been appointed for the purpose of obtaining trustworthy information on future disasters from lightning, with a view to improving, if possible, the means of protection.

In pursuance of this inquiry the Committee seek the co-operation of competent observers in all parts of Great Britain, in order to obtain accurate details, noted on the spot, of the effect of lightning strokes on buildings, whether fitted with lightning rods or not, and as full information as possible on the various matters indicated in the Schedule of Questions prepared for the guidance of observers.

Persons willing to assist the Committee by acting as observers are requested to be good enough to sign and detach the form below and forward it to "The Secretary, Lightning Research Committee, R.I.B.A., 9 Conduit Street, W.," who will at once supply them with copies of the Schedule above mentioned.

To the Secretary, Lightning Research Committee.
The undersigned is willing to act as observer for the District of..
in the County of..
Name..
Address..
....

A notice setting forth the existence and requirements of the Committee was issued to the Press, and appeared in all the technical journals interested, and in more than a hundred representative newspapers in London and the provinces.

An immediate response to the Committee's appeal for observers was received from 225 persons, distributed throughout the United Kingdom as follows:—

Buckinghamshire	3	Herefordshire	2	Sussex	11
Berkshire	2	Isle of Wight	2	Surrey	11
Cambridgeshire	3	Ireland	5	Suffolk	5
Cornwall	7	Kent	15	Scotland	12
Cheshire	10	London	22	Staffordshire	6
Derbyshire	2	Lancashire	12	Somersetshire	4
Durham	6	Lincolnshire	3	Shropshire	2
Devon	7	Middlesex	6	Wales	14
Dorsetshire	2	Northamptonshire	3	Warwickshire	5
Essex	6	Northumberland	4	Worcestershire	2
Gloucestershire	7	Norfolk	4	Westmorland	1
Hertfordshire	1	Nottinghamshire	1	Yorkshire	14
Hampshire	4	Rutland	1		

By the kind assistance of the Secretary of the Institution of Electrical Engineers copies of the Committee's Memorandum and Schedule of Questions were sent to some four hundred members of that institution residing in the Colonies and India and in foreign countries. As a result some interesting records were received.

Through the influence of Mr. J. Gavey, C.B., Engineer-in-Chief to the General Post Office, the various District Engineers of the Post Office were enlisted as observers. The Committee desire to acknowledge their special indebtedness to these observers for a number of admirable records of occurrences which have been found of much value in their investigations.

The War Office, the Home Office, the Trinity House Corporation, and the United States Department of Agriculture also signified their intention of furnishing the Committee with particulars of damage caused by lightning to buildings under their control.

The services of a Press-cutting Agency were engaged to supply the Committee with current newspaper notices of buildings that had suffered from lightning stroke in thunderstorms. Between four and five hundred such notices reached the Committee during the years 1901–4; and in neighbourhoods not represented by the official observers application was immediately made for particulars to the owners or occupiers of the buildings struck, or to members of the Royal Institute of British Architects or of the Surveyors' Institution residing in the vicinity.

The Committee take this opportunity of tendering their grateful acknowledgments for the valuable service so freely rendered by observers in the course of this inquiry. Many of the reports involved the expenditure of much time and labour, and often pecuniary outlay as well. The Committee had intimated their willingness to defray travelling and other necessary expenses; but in very few cases were they called upon to do so.

The heavy thunderstorms of 1901 were fruitful in cases for the Committee's inquiry. Records were received of over sixty buildings struck and damaged, fourteen of them being provided with some form of lightning conductor.

After an examination of the first year's reports the Committee realised that there was a danger of obtaining too great a mass of material and becoming overloaded by it. It was felt that a few complete records of important cases would be better than a multiplicity of observations which would be useful only for statistical purposes. They therefore decided to confine their future investigations to protected buildings only.

In view of the fact that the presence of metal in a building constitutes one of the chief difficulties in arranging for its protection, the Committee were especially desirous of getting more exact information than the earlier reports afforded as to the position of all metal-work in the buildings reported on. Their requirements in this respect were embodied in a memorandum kindly drawn up for the Committee by Sir Oliver Lodge and issued in printed form to observers. The following were the additional points observers were then requested to attend to in making their reports:—

"1. Any signs or indications of where the flash appears to have first struck, and an account of the damage done.

"2. A specification and drawing of the metal-work of the building, paying special attention to metal of every kind which comes anywhere in the neighbourhood of the conductor, whether roof guttering, lead covering, rain-water spouts, sewer ventilators, telephone wires, bell-wires, gas-pipes, ornamental railings, &c., &c., carefully ascertaining whether any of these were either purposely or accidentally connected with the lightning conductor, and, if not, what their nearest distance was from it.

"In the drawing, all metals may be indicated in *red*, no matter of what kind they may be; the hypothetical path of the lightning, as appears to the observer most probable, may be sketched in *blue*, remembering that bifurcation of path is not unlikely. Places of damage may be indicated by a blue swelling or patch, the size of the patch giving a rough idea of the relative damage, and an arrow being employed, when necessary, to call attention to any small patches liable to be overlooked. The patches may be numbered, and the nature of the damage at each place stated in the description. Any place where fire broke out is to be specially attended to.

"3. The nature and condition of the conductor, especially with reference to its continuity, its earth, and its elevation; also how fixed, and, if carried horizontally, its length as compared with the vertical height of its terminal above the ground; also note whether it made any sharp curves or loops round projections of the building, or took an indirect course. Cases of damage where there have been more than one or several conductors are specially important.

"In the case of church steeples the wind vane should receive special attention, and the mode in which its rod terminates in the steeple should be ascertained.

"In the case of chimneys, any internal metal flue should be carefully specified. Likewise any indication that the flash took the column of hot air in preference to the conductor should be recorded; also whether the conductor was bent or curved over the mouth of the chimney or not.

"In any case of importance the earth of the conductor should be specially examined, being, if possible, dug down to for this purpose; and a complete specification of the nature of the earth, the nature of the soil, and of any metal ramifications as well as of moisture in its neighbourhood, should be made.

"Any signs that the discharge has entered the earth should be recorded; and if the conductor is at any point damaged or otherwise affected, this should be specified, and, when interesting, a sample of the damaged portion should be sent. If the conductor has recently been examined and tested, or otherwise reported on, the fact should be stated."

The Committee, taking into account the greater frequency and severity of thunderstorms on the Continent as compared with the British Isles, and the wider experience abroad of the effects of lightning on buildings, have considered it advisable to make themselves acquainted with the systems of protection in general adoption in various parts of Europe. To this end they have been in correspondence with competent authorities abroad, and have been favoured with details of the methods advised and adopted for the safety of buildings in France, Holland, Germany, and Austria-Hungary. These communications have been translated, and the more material of them are set out either at length or in summary in Appendix B. In this connection the Committee desire to acknowledge their indebtedness to the distinguished *savant* who presides over the Royal Joseph Polytechnic University at Buda-Pesth, to whose instrumentality they owe Professor von Hoór's valuable notes detailing the precautions against lightning now coming into use in Hungary, the method of their installation, and their efficacy as shown by experience [see Appendix B]. Dr. van Gulik's recently published Report to the Dutch Academy of Science on Protection of Buildings from Lightning has also been summarised [see Appendix B].

As far as the Committee are able to judge from the newspaper reports which have reached them, the number of reported cases of buildings damaged by lightning in Great Britain during the three years 1901–1904 amounted to over five hundred. Altogether the Committee have had before them detailed reports from their observers of the damage done in 115 cases. Seventy-five cases related to buildings which were without any form of protection. The remaining forty were provided with what had been considered by those responsible for the buildings as sufficient safeguards in the way of lightning rods. While taking due account of the lessons to be learnt from the action of the lightning on unprotected buildings which have been injured, the Committee have deemed it unnecessary for the purposes of this Report to go into the details of these cases. A selection, however, has been made from the reports of "protected" cases, and these will be found summarised and put into tabular form in Appendix A, with observations in some instances of the conditions which appear to the Committee to have contributed to the failure of the means of protection provided.

OBSERVATIONS AND SUGGESTIONS.

It has been pointed out by Sir Oliver Lodge that lightning discharges are of two distinct characters, which he has named the A flash and the B flash respectively. The A flash is of the simple type which arises when an electrically charged cloud approaches the surface of the earth without an intermediate cloud intervening, and under these conditions the ordinary type of lightning conductor acts in two ways: first, by silent discharge; and secondly, by absorbing the energy of a disruptive discharge. In the second type, B, where another cloud intervenes between the cloud carrying the primary charge and the earth, the two clouds practically form a condenser; and when a discharge from the first takes place into the second the free charge on the earth side of the lower cloud is suddenly relieved, and the disruptive discharge from the latter to the earth takes such an erratic course *that no series of lightning conductors of the hitherto recognised type suffice to protect the building.*

On the 28th May last an interesting demonstration of the action of A and B flashes respectively was given by Sir Oliver Lodge before members of the Committee and others interested in these researches. A thin sheet of metal mounted on non-conducting standards represented the cloud, which was charged at will from a Leyden jar. The "cloud" was so arranged that the model lightning conductors could have their points brought nearer to or further from its under-surface by shifting their positions on the table. Conductors of copper, iron, and wet string were experimented with. The disruptive discharge to the copper proved to be by far the loudest and most intense of the three. The iron took the flash with less noise, the wet string with hardly any; yet when the discharge passed through it the other and apparently better conductors were not affected. The experiments tended to demonstrate that iron is in many situations a very useful material for lightning rods, as the effective energy of a flash of lightning is rapidly dissipated in iron. This metal, however, unfortunately oxidises rapidly in towns and smoky districts, and the use of copper as a material for a lightning rod is still recommended for main conductors in relatively inaccessible positions, though iron is electrically preferable.

A consideration of the descriptions of recent foreign practice given in Appendix B, and of the cases which appear in the summary of damage [Appendix A], justifies the following general observations.

It is probable that with few exceptions buildings in this country are not in reality efficiently protected against the effects of a B flash, although in many cases the lightning conductors may be said to have at least partially fulfilled their purpose by carrying off the more violent portion of a discharge, and that without them greater damage would have occurred in many of the cases reported.

Some of these observations throw a very interesting light on the effects due to the oscillatory character of lightning discharges. For instance, a discharge takes place over a lightning rod which may be in contact with, or approach closely to, the metallic portions of a roof. Powerful electrical oscillations are set up in the latter conductors, and dangerously high electrical pressure may be generated on the distant ends of these conductors. If at these points they were connected to earth the pressure would be relieved, and the discharge harmlessly dissipated. Without this safe path the discharge may break away into the down pipes, or may pierce the roof to reach internal conductors. Cases which appear to indicate successive or simultaneous flashes may be due to a single flash setting up these oscillations.

In some cases the damage done to a building by an A flash is not necessarily due to the primary discharge. A lateral discharge occasionally occurs, which frequently causes minor, though in some cases serious, damage owing to falling materials.

Many of the reports of damage to unprotected buildings show that the lightning discharge followed the path of wire ropes, metallic pipes, and other conductors, and that the damage to the structure occurred at the breaks in continuity at the upper and lower terminals respectively.

It may be considered that a lightning conductor of the ordinary type, if properly constructed, affords an undefined area of protection against A flashes; but it cannot be said to have any protective area against B flashes.

Absolute protection of the whole of a building could only be assured by enclosing the structure in a system of wirework - a contrivance, in fact, of the nature of a birdcage. This should be well connected at various points to earth, as nearly all buildings have gas and water pipes and other metallic conductors in their interiors which are likewise earthed. For structures intended for the manufacture or storage of gunpowder and other explosives the adoption of this birdcage protection would be justified on the score alone of public safety. Architectural considerations prevent the adoption of such a method in its entirety for ordinary buildings: there is no doubt, however, that practically perfect protection may be assured by a judicious modification of the existing practice of erecting single lightning rods, especially in the case of extensive and lofty buildings that project well above surrounding structures, or that stand isolated in the open country.

It is obvious that the extent to which the building should be protected, and the expense to be incurred in this protection, must bear some definite relation to the importance or cost of the building itself. In cases where protection is considered desirable, but heavy expense is not justified, two or more lightning rods might be erected in the ordinary manner, these being connected by a horizontal conductor, and the metal portions of the roof and the rain-water down pipes should be metallically connected and well earthed.

Tall chimney shafts are not efficiently protected against a B flash by an ordinary single lightning rod, as a hot column of smoke issuing from a chimney conducts as well as or even better than a rod. A circular band should surround the top of the shaft; four or more conductors should be raised above the latter in the form of a coronal, or the Continental practice of joining the elevation rods together, so as to form an arch over the chimney, may be employed with advantage. One or, preferably, two lightning rods should extend from this circular band to the earth in the manner described below.

As most buildings contain systems of gas and water pipes, a good earth for the lightning conductors is highly desirable. In the case of a stove inside a building with a metallic stove-pipe carried outside, the stove should be earthed, and a wire be led from the pipe to earth outside, or to the nearest conductor.

The various cases noted by the Committee show that, while even single conductors tend to diminish the damage done to buildings by lightning, no reliance can be placed on an area of protection. Judging by the latest foreign practice Continental experience appears to be confirmatory of this view (see HOLLAND, HUNGARY, and GERMANY, Appendix B). In churches and other buildings with spires and towers the lower projections should also be protected, even if forming part of the salient features of the building.

No cases of damage to modern steel frame structures have come under the notice of the Committee. The ordinary method of construction, however, in this country does not provide full protection. In many cases the steel columns stand on stone foundations, and the metal is not carried deep enough for effective earthing. The metal columns ought to be earthed at the time of construction.

In the opinion of the Committee the methods advocated in the Report of the Lightning Rod Conference still hold good, provided arrangements are made to keep the earth permanently moist. The Committee therefore deem it convenient to print here the Rules issued by the Lightning Rod Conference in 1882, supplementing them with observations and suggestions of their own based on the results of their recent researches.

RULES FOR THE ERECTION OF LIGHTNING CONDUCTORS, AS ISSUED BY THE LIGHTNING ROD CONFERENCE IN 1882; WITH OBSERVATIONS THEREON BY THE LIGHTNING RESEARCH COMMITTEE, 1905.

Lightning Rod Rules, 1882.	Lightning Research Committee's Observations, 1905.
Points.—The point of the upper terminal should not be sharp, not sharper than a cone of which the height is equal to the radius of its base. But a foot lower down a copper ring should be screwed and soldered on to the upper terminal, in which ring should be fixed three or four sharp copper points, each about 6 inches long. It is desirable that these points be so platinised, gilded, or nickel-plated as to resist oxidation.	It is not necessary to incur the expense of platinising, gilding, or electroplating. It is desirable to have three or more points beside the upper terminal, which can also be pointed; these points must not be attached by screwing alone, and the rod should be solid and not tubular.
Upper Terminals.—The number of conductors or points to be specified will depend upon the size of the building, the material of which it is constructed, and the comparative height of the several parts. No general rule can be given for this; but the architect must be guided by the directions given. He must, however, bear in mind that even ordinary chimney stacks, when exposed, should be protected by short terminals connected to the nearest rod, inasmuch as accidents often occur owing to the good conducting power of the heated air and soot in the chimney.	This is dealt with below in suggestion 3 [p. 417.]
Insulators.—The rod is not to be kept from the building by glass or other insulators, but attached to it by metal fastenings.	This regulation stands.
Fixing. — Rods should preferentially be taken down the side of the building which is most exposed to rain. They should be held firmly, but the holdfast should not be driven in so tightly as to pinch the rod, or prevent the contraction and expansion produced by changes of temperature.	In most cases it would be advantageous to support the rods by holdfasts (which should be of the same metal as the conductor) in such a manner as to avoid all sharp angles. The vertical rods should be carried a certain distance away from the wall to prevent dirt accumulating, and also to do away with the necessity of their being run round projecting masonry or brickwork.
Factory Chimneys.—These should have a copper band round the top, and stout, sharp, copper points, each about one foot long, at intervals of two or three feet throughout the circumference, and the rod should be connected with all bands and metallic masses in or near the chimney. Oxidation of the points must be carefully guarded against,	As an alternative the rods above the band might with advantage be curved into an arch provided with three or four points. It is preferable that there should be two lightning rods from the band carried down to earth in the manner previously described. Oxidation of the points does not matter.

Lightning Rod Rules, 1882—*continued.*	Lightning Research Committee's Observations, 1905—*continued.*
Ornamental Ironwork —All vanes, finials, ridge ironwork, &c., should be connected with the conductor, and it is not absolutely necessary to use any other point than that afforded by such ornamental ironwork, provided the connection be perfect and the mass of ironwork considerable. As, however, there is risk of derangement through repairs, it is safer to have an independent upper terminal.	Such ironwork should be connected as indicated below in suggestion 3. In the case of a long line of metal ridging a single main vertical rod is not sufficient, but each end of the ridging should be directly connected to earth by a rod. Where the ridge is non-metallic a horizontal conductor (which need not be of large sectional area) should be run at a short distance above the ridge and be similarly connected to earth.
Material for Rod.—Copper, weighing not less than 6 ounces per foot run, and the conductivity of which is not less than 90 per cent. of that of pure copper, either in the form of tape or rope of stout wires—no individual wire being less than No. 12 B.W.G. Iron may be used, but should not weigh less than $2\frac{1}{4}$ lb. per foot run.	The dimensions given still hold good for main conductors. Subsidiary conductors for connecting metal ridging &c. to earth may with advantage be of iron and of a smaller gauge, such as No. 4 S.W.G. Galvanised Iron. The conductivity of the copper used is absolutely unimportant, except that high conductivity increases the surges and side flashes, and therefore is positively objectionable. It is for that reason that iron is so much better.
Joints.—Although electricity of high tension will jump across bad joints, they diminish the efficacy of the conductor; therefore every joint, besides being well cleaned, screwed, scarfed, or riveted, should be thoroughly soldered.	Joints should be held together mechanically as well as connected electrically, and should be protected from the action of the air, especially in cities.
Protection.—Copper rods to the height of 10 feet above the ground should be protected from injury and theft by being enclosed in an iron pipe reaching some distance into the ground.	
Painting.—Iron rods, whether galvanised or not, should be painted; copper ones may be painted or not according to architectural requirements.	
Curvature.—The rod should not be bent abruptly round sharp corners. In no case should the length of the rod between two points be more than half as long again as the straight line joining them. Where a string course or other projecting stone work will admit of it, the rod may be carried straight through, instead of round the projection. In such a case the hole should be large enough to allow the conductor to pass freely, and allow for expansion, &c.	The straighter the run the better. Although in some cases it may be necessary to take the rod through the projection, it is better to run outside, keeping it away from the structure by means of holdfasts, as described above.

Lightning Rod Rules, 1882—*continued.*	Lightning Research Committee's Observations, 1905—*continued.*
Extensive Masses of Metal.—As far as practicable it is desirable that the conductor be connected to extensive masses of metal, such as hot-water pipes, &c., both internal and external; but it should be kept away from all soft metal pipes, and from internal gas-pipes of every kind. Church bells inside well-protected spires need not be connected.	It is advisable to connect church bells and turret clocks with the conductors.
Earth Connection.—It is essential that the lower extremity of the conductor be buried in permanently damp soil; hence proximity to rain-water pipes, and to drains, is desirable. It is a very good plan to make the conductor bifurcate close below the surface of the ground, and adopt two of the following methods for securing the escape of the lightning into the earth. A strip of copper tape may be led from the bottom of the rod to the nearest gas or water *main*—not merely to a lead pipe—and be soldered to it; or a tape may be soldered to a sheet of copper 3 feet by 3 feet and $\frac{1}{16}$ inch thick, buried in permanently wet earth, and surrounded by cinders or coke; or many yards of the tape may be laid in a trench filled with coke, taking care that the surfaces of copper are, as in the previous cases, not less than 18 square feet. Where iron is used for the rod, a galvanised iron plate of similar dimensions should be employed.	The use of cinders or coke appears to be questionable owing to the chemical or electrolytic effect on copper or iron. Charcoal or pulverised carbon (such as ends of arc-light rods) is better. A tubular earth consisting of a perforated steel spike driven tightly into moist ground and lengthened up to the surface, the conductor reaching to the bottom and being packed with granulated charcoal, gives as much effective area as a plate of larger surface, and can easily be kept moist by connecting it to the nearest rain-water pipe. The resistance of a tubular earth on this plan should be very low and practically constant.
Inspection.—Before giving his final certificate the architect should have the conductor satisfactorily examined and tested by a qualified person, as injury to it often occurs up to the latest period of the works from accidental causes, and often from the carelessness of workmen.	Inspection may be considered under two heads:— *A.* The conductor itself. *B.* The earth connection. *A.* Joints in a series of conductors should be as few as possible. As a rule they should only be necessary where the vertical and horizontal conductors are connected, and the main conductors themselves should always be continuous and without artificial joints. Connections between the vertical and horizontal conductors should always be in places readily accessible for inspection. Visible continuity suffices for the remainder of circuit. The electrical testing of the whole circuit is difficult, and needless. *B.* The electrical testing of the earth can in simple cases be readily effected. In complex cases, where conductors are very numerous, tests can be effected by the provision of test clamps of a suitable design.

Lightning Rod Rules, 1882—*continued.*

Collieries. — Undoubted evidence exists of the explosion of fire-damp in collieries through sparks from atmospheric electricity being led into the mine by the wire ropes of the shaft and the iron rails of the galleries. Hence the headgear of all shafts should be protected by proper lightning conductors.

The investigations of the Committee warrant them in putting forward the following practical suggestions:—

1. Two main lightning rods, one on each side, should be provided, extending from the top of each tower, spire, or high chimney stack by the most direct course to earth.
2. Horizontal conductors should connect all the vertical rods (*a*) along the ridge, or any other suitable position on the roof; (*b*) at or near the ground line.
3. The upper horizontal conductor should be fitted with aigrettes or points at intervals of 20 or 30 feet.
4. Short vertical rods should be erected along minor pinnacles and connected with the upper horizontal conductor.
5. All roof metals, such as finials, ridging, rain-water and ventilating pipes, metal cowls, lead flashing, gutters, &c., should be connected to the horizontal conductors.
6. All large masses of metal in the building should be connected to earth either directly or by means of the lower horizontal conductor.
7. Where roofs are partially or wholly metal-lined they should be connected to earth by means of vertical rods at several points.
8. Gas pipes should be kept as far away as possible from the positions occupied by lightning conductors, and as an additional protection the service mains to the gas meter should be metallically connected with house services leading from the meter.

JOHN SLATER, *Chairman.*
E. ROBERT FESTING.
OLIVER LODGE.
J. GAVEY.
W. N. SHAW.
A. R. STENNING.
ARTHUR VERNON.
KILLINGWORTH HEDGES, *Hon. Secretary.*
G. NORTHOVER, *Secretary.*

10*th April*, 1905.

APPENDIX A.—Analysis of Selected Reports of

No.	Description of Building	Effect of Discharge on Building	Probable Path of Discharge
1	Dalston: German Lutheran Church.—Spire about 140 ft. high; nave, 80 ft. long and 40 ft. high *Reported by* Messrs. George Legg and Alfred Hands	Fire, through ignition of gas at meter. Organ destroyed, and timbers of organ loft fired	From vane *viâ* conductor, rain-water pipe, lead flashing, and gas-piping to meter; thence to earth
2	Truro: Kea Church.—Wooden spire (88 ft. high) covered with copper *Reported by* Messrs. J. C. Daubuz and G. H. Fellowes Prynne	Tiling damaged; lead flashings turned back; wall considerably shaken and face stones fractured	Divided; part going by conductor and part by alternative path formed by copper covering of spire, iron pipe, &c., from which it sparked through parapet wall to lead flashing
3	Stradbroke, nr. Eye: Church.—Square tower with lead roof, flagstaff, and pinnacles *Reported by* Messrs. Alfred Hands and William Clutten	Flagstaff shattered; pinnacle badly damaged and had to be rebuilt; hole pierced in wall; door to turret thrown off	Passed from flagstaff along lead roof to door of turret, thence through wall to conductor
15	Portsea: Workhouse.—2-storied block of buildings *Reported by* Mr. George Cowan	Chimney and brickwork damaged; roof perforated; casing of electric-light wires splintered and wires fused	From chimney through roof and ceiling, along iron picture rods to electric-light wires
25	Darwen: Alexandra Hotel.—Irregularly built *Reported by* Mr. F. G. Haworth, M.B., F. R. Met. Soc.	Chimney broken; grate displaced and marble fireplace broken down	Down the interior of the chimney itself
28	Walsall: Shire Oak Brewery.—Chimney 70 ft. high *Reported by* Mr. G. H. Boulter.	Bricks displaced at top of chimney, and earth dislodged at bottom of conductor	Struck chimney opposite conductor, and then passed to conductor
30	Hampstead, Golder's Green: Convalescent Home, formerly private residence *Reported by* Mr. Walter Hall	Small hole made in apex of gable, casement of window damaged; plastering damaged and looking-glass smashed	Uncertain
38	Woolwich: No. 12 Magazine.—Copper roof *Communicated by* H.M. Inspector of Submarine Defences.	Uprights to fence or outer gate damaged	Struck fence; post split and broken
41	Leadburn: Signal Cabin.—Brick and wood *Reported by* Mr. James Wilson, and further by Mr. A. Clements, Superintendent of Telegraphs, N. Brit. Railway	Telegraph pole struck; train signalling instrument damaged; woodwork set on fire	From pole, along wires, to cabin
54	Stoerhead Lighthouse.—Metal roof and iron railing around lighthouse *Reported by* Mr. J. M. Irvine, Engineer	Wall damaged, bedstead scorched; gutta-percha wires of telephone circuit burned; woodwork set fire to	Part at least took path by speaking tube, telephone wires, and also by bedstead to wires; thence to earth at pole

Buildings Struck, with Observations by the Committee.

Character of Conductor	Conditions conducing to Discharge through Building			Remarks
	Insufficient Number of Conductors	Quality of Earth Connection	Alternative Paths of Discharge (unearthed)	
Woven copper band (Spratt's), 3 oz. to the foot	—	Bad; only a few inches of conductor passed into gulley	Rain-water pipe, lead flashing. Rain-water pipe and gas-pipes not earthed or connected to conductor	Bad earth; neither lead flashing nor water pipes connected to earth though in close proximity to conductor; the lightning rod itself carried too close to the gas pipes; the gas meter not bridged over by a conductor joining the inlet and outlet pipes
Copper tape 1¼ in. by ⅛ in.	—	Good earth	Copper sheathing of spire, rain-water pipe, and copper wire which passed over conductor and near pipe	The rain water down pipes should have been connected with the roof metals, *i.e.* to the copper roof and lead flashings, and also to earth. This would have prevented the side flash and consequent damage
Copper rope ⅜ in. dia.	Flagstaff being highest point should also have been protected	Very bad earth; rope merely knotted and passed through stone 18 in. below surface. Resistance to earth very high	—	Earth bad. The failure to provide a branch conductor from the flagstaff to the main conductor, and the omission to earth the lead flashing, real cause of damage
No conductor in part of building damaged	—	—	—	Insufficient number of conductors to protect the whole range of buildings, and metal projections on roof not connected to earth
Copper rod (good quality) ¾ in. diameter	Formerly conductors on all chimneys; now only three	Character not stated	—	Insufficient number of conductors to protect entire building; of the seven chimneys, all of the same height, only three protected; the nearest conductor 41 ft. from the point struck. This is probably a good illustration of the B flash. At about the same time a horse was killed in a field outside the town
Copper tape and rod carried 4 ft. above chimney	—	—	—	Building occupying the highest ground in the neighbourhood. Illustrates fact that lightning conductors on a shaft should terminate at the upper extremity in manner recommended by Committee
Copper rope ½ in. and ⅜ in. diameter, and rod ¾ in. Three points	Only one finial point protected; three without conductors	Character not stated	—	All the finials should have been connected by subsidiary conductors to earth
—	—	—	—	Magazine well protected against lightning discharges; the damaged post so far from magazine that no protection afforded by lightning rods. Probably a B flash
Cabin not protected	—	—	—	Lightning protectors provided on all telegraph instruments. The one in question did not act efficiently
Copper rod ¾ in. or ⅞ in. diameter	—	Earth not good. Resistance from ground line 29 ohms	Iron railings; speaking-tube and telephone wires	An isolated building on an eminence. The copper speaking-tube and the iron railing around the lighthouse should have been connected to independent earths

APPENDIX A.—Analysis of Selected Reports of Buildings

No.	Description of Building	Effect of Discharge on Building	Probable Path of Discharge
56	Devaar Lighthouse.—Iron lantern frame; copper dome, 130 ft. high; dwelling-houses 30 ft. from tower; lead roof and lead down pipes leading to enclosed cisterns or tanks *Reported by* Mr. C. Dick Peddie	Hole pierced in lead whistle-pipe; whistle and pipe fused, dwelling-houses near damaged; tank-covers weighing 28 lb. displaced 3 ft.	From conductor or copper dome by iron frame of lantern to speaking-tube
57	Rochdale: Stricklands Brewery.—Stone building, tall chimney, iron band round base of chimney *Reported by* Mr. H. Frost, Sectional Engineer, P. O. Telegraphs	Chimney cracked 15 ft. above shed abutting on stack; portion of rod above chimney broken off	Uncertain
60	Withernsea: Signal box, wooden cabin *Reported by* Mr. W. G. Cudworth, Engineer N. E. Railway	Window sash and frame of building fired. Block and bell instruments smashed and scattered in all directions	Struck telegraph wires 100 yds. distant, and passed along wires to box; through instruments to earth
62	Blea Moor: Midland Railway line.—A guide post on footpath struck and charge entered wooden casing carrying cables, mounted on short creosoted pillars 12 in. above ballast *Reported by* Mr. W. Langdon	Guide post shivered into fragments. Boxing displaced and split open for a distance of 33 ft.	From guide post, along surface of ground up creosoted pillars and into casing by nail fastening it to support, thence to signal wire and to earth
64	Cambridge: Cavendish Laboratory *Reported by* Mr. W. M. Fawcett, M.A., F.S.A.	Displaced tiles; made hole through sill of dormer and fused gas pipe	Struck brass knob on top of lead-covered angle of roof, passed to lead cheek of dormer and to gas pipe
65	Maidenhead: Church of All Saints. *Reported by* Mr. Arthur Goulding.	Cock on finial of tower knocked off the spindle, breaking some tiles in its fall	Finial rod and cock to copper conductor
66	Mark's Tey. St. Andrew's Church: Tower of oak; wooden spire covered with oak shingles *Reported by* Mr. W. Cressall	Displaced weathercock and disturbed some bricks	Probably struck weathercock, and passed to conductor connected therewith
67	Possingworth House, Cross-in-Hand: Private dwelling *Reported by* Mr. Killingworth Hedges, M. Inst. C.E.	Building struck twice. First case struck and displaced conductor, and also did damage to chimney and slates. Second case destroyed chimney, damaged roof, and part of the divided flash struck statue not provided with rod	First case main charge probably followed rod. Second case the flash ignored the intermediate chimneys, which were all protected by individual rods, and struck the one unprotected point, which was much lower than the chimney-stacks

STRUCK, WITH OBSERVATIONS BY THE COMMITTEE—*continued.*

Character of Conductor	Conditions conducing to Discharge through Building			Remarks
	Insufficient Number of Conductors	Quality of Earth Connection	Alternate Paths of Discharge (unearthed)	
Copper rod $\frac{3}{4}$ in. diameter. Forked finial	—	Two earth plates 20 in. by 10 in. by $1\frac{1}{8}$ in., 6 ft. apart, connected by rod. Soil not of the best	Whistle-pipes formed alternate path	Another case illustrating defects in Nos. 2 and 54; all metallic masses inside and outside the tower should have been interconnected and well earthed in suitable positions. Spires or towers with metallic roofs should be provided with at least two independent conductors, one on each side
Rod with three prongs	—	Character of earth unknown	—	No sufficient data could be obtained to admit of a definite opinion as to cause of damage
—	—	—	—	Somewhat similar case to 41. Lightning entered signal-box along telegraph wires, and the instrument-protector failed to act
—	—	—	—	An interesting case illustrating erratic path chosen by lightning. A passage along the earth, up a wooden post, and into a wooden casing to reach the metallic surface of a lead-covered cable, which it traversed for some distance before it entered the mechanical signal wire. This under ordinary circumstances would appear an impossible route. The charge only reached a good earth when it entered the rails
Copper wire rope $\frac{3}{8}$ in. diameter on tower	Conductor on tower 36 ft. from point struck	Not stated, but the rod had been recently fixed	Brass knob to iron rod and lead cheek of dormer and gas pipe	Illustrates the need for earthing all metallic portions on the roof of a building
Finial rod $\frac{3}{8}$ in. iron 6 ft. above apex of spire; $\frac{1}{2}$ in. wire rope	—	Stated no earth plate	—	The cock formed an imperfect upper terminal to the lightning rod; apart from this the rod acted efficiently
Copper wire rope, $\frac{1}{2}$ in. diameter; single pointed terminal	—	Not stated	—	Beyond displacing weathercock at top, and a few bricks where the rod entered the ground, no damage done; although apparently not efficiently terminated at either end the rod conveyed the charge safely to earth
Copper tape, $1\frac{1}{8}$ in.	Every chimney-stack fitted with a rod. The flash struck the rods on both occasions about 3 feet below the air terminal	Good.	The tape conductor was run indirectly to earth, so that a portion of the charge travelled down the wet roof	These two cases can only be reasonably explained on the supposition that the discharges were of the B type, and this hypothesis is supported by the fact that numerous trees in the neighbourhood were struck. An unusual number of lightning rods were provided, although they were not interconnected. It will be noted that the structure did not suffer any internal damage, so that the rods afforded some measure of protection; and if they had been connected by a horizontal conductor, furnished with more direct earth connection, the damage might possibly not have occurred

APPENDIX A.—Analysis of Selected Reports of Buildings

No.	Description of Building	Effect of Discharge on Building	Probable Path of Discharge
68	St. Pancras' Church, Euston: Spire surmounted by gun-metal cross. Lead roof *Reported by* Mr. Arthur R. Kelly	Gas-pipe fused and gas ignited in church; joints in buried gas-pipe parallel to and 16 ft. from buried end of conductor destroyed; large escapes of gas caused; electric light fuses destroyed	Portion at least passed from steam exhaust pipe, hot-water radiator and supply pipe to open gulley
73	Swanscombe: Church, with oak shingled spire *Reported by* Mr. W. P. Goulding	Fire; portion of church destroyed	Along rod to opening in tower about 5 ft. above ground, thence in iron rods to earth along an unknown channel inside. Wooden staircase first set on fire
74	Aldenham Church, near Watford, Herts.—Timber spire on top of tower. Clock chamber some 20 ft. below lead flat of tower; clock weight exposed through belfry, but below belfry cased in down to floor of church, where there is a pit 6 ft. deep to receive it *Independent reports* by Messrs. Harry G. Assiter and Fred. V. Selfe	Copper weathercock twisted; oak timbers and shingles of spire shattered; wood casing for clock weights, and oily rags at base thereof, ignited	From lead flat of stone tower to tenor bell; thence to clock, and down the steel wire ropes ($\frac{3}{16}$ in. diam.) of clock weight to earth
75	St. Botolph's, Aldgate: Church with tower and spire *Reported by* Mr. Killingworth Hedges, M.Inst. C.E.	Parapet under spire shattered. Finial to which conductor connected disturbed at base	—
76	Kingston: Boys' School.—200 ft. by 50 ft. 60 ft. to ridge of roof *Reported by* Mr. Isaac Slade	Chimney stack damaged. Picture hung with wire scorched	From chimney, probably followed course of iron pipes throughout building
78	Inverness: Post Office.—Standard overtopped mansard roof by 12 ft., and had 15 wires attached to it. Flat tops of mansard roofs covered with sheet lead *Reported by* Mr. J. M. Irvine, Engineer P.O. Telegraphs	Lead on roof damaged. Below roof two discarded gutta-percha covered wires (reaching from ceiling to within a foot of iron hot-water pipes on floor) set fire to, and wood lining of rooms ignited	—
79	Benefield: Church with tower and spire surmounted by a copper cross *Reported by* Mr. Fred V. Selfe	Displacement and bulging of spire, threatening its collapse; supposed to have been caused by lightning. No direct evidence	From copper cross down iron upright supporting cross to cross bars, then through joints of stone work to conductor

STRUCK, WITH OBSERVATIONS BY THE COMMITTEE—*continued.*

Character of Conductor	Conditions conducing to Discharge through Building			Remarks
	Insufficient Number of Conductors	Quality of Earth Connection	Alternative Paths of Discharge (unearthed)	
Copper stranded cable $\frac{5}{8}$ in. diameter looped round square base of gun-metal cross on top of spire, then to lead roof and to earth	—	—	Alternative path formed by relief pipe (which protruded above roof) hot-water system, and finally to earth *viâ* gas-pipes	Most interesting and instructive case. The lightning charge evidently struck the rod and set up violent electrical oscillations in the lead roof with which it was in metallic contact at one end. Had suitable earth connections been provided at the distant end of the nave, and had the heating system been also connected to earth, no damage would have occurred. The only outlet to earth for the charge was *via* the gas-pipe; hence the damage
$\frac{3}{4}$ in. solid iron rod in 10 ft. lengths united by plumber's joints; ended 2 ft. above earth on iron gas barrel, but (said to be) not connected	—	Rod ended in an iron tube which entered ground. Earth very bad	—	An imperfect rod with very bad earth. Apparently the charge entered the tower at the lower opening and found its way to earth, setting fire to the staircase in the passage
Copper cable, 1 in. diameter; connected to finial		Not stated	—	An interesting case in which the metallic bell-cord acted as a lightning rod, damage being restricted to the upper and lower extremities only
—	—	—	—	The lightning rod took several sharp angles that may have caused side flash, which reporter thinks passed on to earth *via* the rain-water pipe, which was near but not connected to the rod
Not stated	Insufficient number of conductors	Not stated	Conductor followed side of iron down pipe; distance between not stated	Damage probably due to two causes: first, a single lightning rod of moderate height quite insufficient to afford reasonable protection even against A flashes; and, secondly, the interior pipes for heating and other purposes formed an alternative path which could only be reached by a fracture of some part of the structure
One conductor, $\frac{7}{16}$ in. strand, copper, 12 ft. above roof fastened with galvanised iron staples. Wires at top were untwisted, separated, and sharpened at points; at bottom were soldered to 12-in. iron water-main pipe, after encircling it several times	—	—	—	The damage was probably due to the fact that the lead flats and the iron portions of the building were not connected to earth
Not stated	—	Said to be faulty	From copper cross and upright to cross beams supporting same	A case in which upper portion of spire found to be damaged in a manner which might have occurred had a lightning flash followed the course of the copper cross with its metallic support, then flashed through stonework to the conductor. Indirect evidence only

APPENDIX A.—Analysis of Selected Reports of Buildings

No.	Description of Building	Effect of Discharge on Building	Probable Path of Discharge
80	Welbeck Abbey: Library and chapel.—Rectangular building—copper-covered roof *Reported by* Mr. J. Wallace Stevens	Window sill broken and pieces thrown about; rain-water pipe (sunk in wall) bared	Uncertain, probably from roof to rain-water pipe, then to earth
83	Highgate: St. Michael's Church.—Tower and spire surmounted by stone cross, 145 ft. high *Reported by* Mr. Walter Hall and Mr. Killingworth Hedges	One arm of stone finial cross broken and displaced; ball of cross shattered; falling stones crashed through roof of nave	Struck arm of cross, then probably passed to conductor
85	Derby: Carriage sheds.—Midland railway *Reported by* Mr. W. Langdon	Shed itself unhurt, but discharge struck gas-pipe on roof of carriage and ignited gas	Uncertain
86	Bolton: Ainsworth Mill.—Chimney about 60 ft. high *Reported by* Mr. W. W. Midgley, F. R. Met. Soc.	Chimney demolished. Windows of mill broken; gas-pipe fused and gas ignited. Engine-house destroyed by falling chimney	Not known
88	Bedford: St. Paul's Church.—Tower and spire *Reported by* Mr. W. P. Goulding	Heavy beams inside building slightly displaced, supporting corbels split; main switch of electric light fused. Iron rain-water pipes broken; lead flashings on roof broken and torn away	By conductor from top of spire to lead flat, at bottom of spire, on which conductor lay; then divided, portion finding earth through rain-water pipes &c.
93	Coatbridge, Lanarkshire: Church.—Tower about 80 ft. high, upper half octagonal, carrying eight cone-shaped balusters, one at junction of each angle *Reported by* Mr. W. E. A. Knight	Three balusters damaged and part of conductor rod led round tower fused. Roof damaged by falling stones	Struck balusters, then followed circular part of conductor to loop, then to vertical conductors and to earth
94	Torr Head: Coast Guard Station *Reported by* Mr. T. Patterson, P. O. Engineer	All windows smashed; iron eaves gutter smashed; telephone wires fused	Not certain
97	Canton, Cardiff: St. John's Church.—From top of steeple to ground, about 175 ft. *Reported by* Mr. W. H. Monk, P.O. Telegraph Superintendent	Conductor torn away at about 30 ft. from the trident; electric-light wire fused; plaster damaged in several places; lead on lower roof ripped up; and stone coping torn away where lightning left conductor for the leads	After leaving conductor passed along leads of lower roof to electric-light wire, and thence jumped to heating apparatus
98	East London Waterworks: Chimney of Pumping Station, Sunbury. *Reported by* Mr. W. B. Bryan, M.Inst.C.E., Chief Engineer	Struck upper cornice of campanile, then lower cornice, shattering stonework above and below	Flash followed the hot air escaping from side, then travelled from upper to lower cornice, thence to steel stand-pipe inside chimney

STRUCK, WITH OBSERVATIONS BY THE COMMITTEE—*continued.*

Character of Conductor	Conditions conducing to Discharge through Building			Remarks
	Insufficient Number of Conductors	Quality of Earth Connection	Alternative Paths of Discharge (unearthed)	
Two conductors, copper wire twisted ½ in. diameter	—	Earth connections bad (Details unknown)	—	Damage insignificant, probably due to oscillatory side flash from the copper roof to the rain-water down pipes which were not in metallic connection
Copper rod, ⅝ in. diameter	—	Found to be in connection with the electric-light mains	—	A stroke caused similar damage some years ago
—	—	—	—	One of fourteen railway carriages standing in a light timber shed unprovided with a conductor
Not known, but said not to be in good repair	—	Unknown	—	The fall of the chimney wrecked the engine-house, and the mass of débris was so great as to prevent further investigation. The flash would appear to have taken a path along the interior of the chimney in preference to that furnished by a faulty lightning rod, for it burst out with destructive violence at the base of the chimney, causing the collapse of the whole
Copper cable ⅝ in. diameter terminated under seat of weathercock. From the base of the spire the conductor was laid on the lead flat	—	Not stated	Formed by lead roof and rain pipes &c.	A very interesting case. The conductor being in contact with the lead flat violent oscillations were set up which extended the whole length of the roof; no subsidiary conductors being provided, the discharges took all available paths, some inside and some outside the building
Copper rope of seven strands from above balusters to earth. A subsidiary conductor carried around at the base of the balusters and connected to main rod	—	—	—	A conductor on each baluster reaching down to the circular band at the base of the balusters would have prevented all damage
Building itself not protected. Flagstaff which is apart from but close to the building protected by conductor ¼ in. diameter	—	Earth bad; conductor buried in cement	—	Had a good earth been provided for the conductor on the flagpost probably this damage would not have occurred
One conductor; trident at top, and about 12 ft. of iron casing at bottom	—	Bad. Earth plate 1 in. wide, and about a yard long, buried about 10 in. beneath surface in very dry soil	—	The lightning rod very old and worn very thin where it passed through the staples; conductor fused and main charge diverted to the lead flashing of the lower roof. This shows the necessity of running direct to earth and avoiding sharp bends
No special conductor, as the 36-in. steel standpipe connected to several miles of mains came almost to the top of chimney	—	Raining heavily	—	This proves that a flash will follow a column of hot air, and in this case was diverted from the standpipe which formed a perfect conductor to earth

APPENDIX B.

LATEST PRACTICE ABROAD.

HOLLAND.

The following is translated from the Dutch of the very complete and valuable Report made by Dr. D. van Gulik at the request of the Dutch Academy of Science, which has just been published under the title of "Further Inquiries in regard to the Protection of Buildings from Lightning" (Haarlem, 1905) :—

1. Lightning conductors serve to lessen the risk of fire and of serious damage for the buildings protected by them, and to reduce considerably the danger to life for those who inhabit the buildings. Whether the risk of a building being struck by lightning is also lessened by the installation of points or bundles of points is very doubtful. Where, therefore, economy is an object these may be first dispensed with.

2. In protecting buildings from lightning we must bear in mind that, contrary to what we notice in the case of constant electric currents—

(*a*) Lightning shows a great tendency to distribute itself over such conductors as may be present, and in so doing to pay little heed to the electrical resistance of the conductor.

(*b*) That it finds no great difficulty in making its way, often for a considerable distance, through the air or through any other good conducting medium.

(*c*) That it prefers to move, as far as possible, in a straight line, and that, therefore, sharp turns or spiral windings in conductors present hindrances which, in view of the properties mentioned in paragraphs *a* and *b*, readily lead to lateral discharges.

Absolute security is not attainable, or attainable only with great difficulty, and in any case at considerable expense. On the other hand a quite satisfactory degree of protection can be secured by very simple means.

3. The greater the importance attached to the preservation of a building and its contents, the more perfect can the system of conductors be made, and thus a higher coefficient of safety is obtained by increased expenditure.

4. The conductors at present used in Holland secure a fairly high degree of safety in the case of houses with tiled or slated roofs, as they reduce the risk of fire when struck to an average of between one-sixth or one-seventh. Statistics show, however, that the lightning frequently diverges from them, and may even strike the buildings without touching the terminal rods. Moreover, the cost of installation is so great that many people are deterred thereby from having these useful appliances fitted. Certain general improvements and simplifications may, however, be pointed out, by means of which the conductors would, even at a lower cost, better answer the purpose for which they are intended.

5. The *improvements* are in the main as follows :—

(*a*) All salient positions liable to be struck should be provided with terminals in the form of short rods or wires, and the roof should be girt round on all sides by wire conductors. This would take the place of the high terminal rods with their imaginary cone of safety.

(*b*) Several conductors running to the earth should be fitted.

(*c*) The system of conductors should be connected with any extensive metallic mass present in the building, if necessary at more points than one. In the case of gas and water pipes such connection is absolutely necessary.

6. The principal *simplifications* may be summed up thus :—

(*a*) High terminal rods should be abolished, as it is difficult to fix them firmly enough.

(*b*) Copper, which is the material generally used for conductors and earth-connections, should be replaced by iron. This, if well galvanised, will resist atmospheric influences for a very long time, and can, moreover, be easily protected by a coat of paint.

(*c*) The thickness of the conductors should be reduced. In support of this we may adduce the evidence of the ordinary telegraph wire, which is seldom, if ever, found to be melted except at the point where it is struck. Even in providing for extreme cases we should not lose sight of the fact that a wire will do its duty even though it succumbs to the force of the stroke.

(*d*) The metallic constructional portions of the building should be pressed into service as conductors. By this means either the conducting system is extended, with a consequent increase in the margin of safety, or the use of special conductors may be partly dispensed with. This last expedient provides a ready means, in the case of special classes of buildings, of providing quite efficient conductors at a trifling cost. It is not necessary that there should be metallic contact between the metal constructions provided that they overlap one another over an area of 10 square centimetres.

7. In making earth-connections too much importance is often attached to reaching the ground water level, while on the other hand too little care is taken to secure a good connection between the conductor and the uppermost layer of soil. By paying attention to this a considerable saving may in some cases be made in the cost of the earth-contact. In isolated cases where connection with

underground pipes, &c., is possible, no special earth-connection is necessary.

8. When building houses it is desirable that the conductors should always be marked on the plans. This makes their installation easier and reduces the cost. Moreover, it enables architects to exclude from their plans constructions which would tend to increase the risk of fire in the event of the house being struck by lightning.

9. Special precautions are necessary in the case of thatched roofs. These consist mainly in keeping the conductors some distance away from the roof and in making the wire of such thickness that it shall not be destroyed at the point where it is struck by lightning. If this be done, a high degree of safety is attainable even in the case of thatched roofs.

Hungary.

Through the good offices of the Rector of the Royal Joseph Polytechnical University, Budapest, Dr. Moritz von Hoór kindly favoured the Committee with the following remarks concerning the precautions against lightning now coming into use in Hungary, showing the method of their installation, and their efficacy as proved by experience:—

Up to the year 1892, in Hungary as well as in other countries, lightning conductors with collecting points according to the Franklin system were the only ones in use. Here, as elsewhere, the view was universally accepted that absolute security for the efficiency of lightning conductors was afforded by the largest possible cross section of the lightning rod, by a slight change of the collecting apparatus, and by a good earth connection. It was held, therefore, that a conductor had been rightly set up when the collecting point and the earth had been connected by strong copper wires or cables, and care had been taken for a good earth contact.

Experience of such lightning conductors, however, as well as observations systematically taken in England and the English colonies, and in Germany, proved that lightning rods on this principle did not answer their purpose, and in particular that the directions as to the area of protection of the conductor and the relation between height and base of the protected zone were of no practical value and quite baseless.

It was repeatedly observed that there were lateral discharges from the conductor in the direction of the metal parts (badly connected apparently with the earth), that sparks leapt over curves in the conducting apparatus, and in general that buildings and other objects protected by the collecting points suffered damage from lightning, though to a far less extent, as shown by statistics, than objects altogether unprovided with lightning conductors.

It was not until the beginning of the nineties that our views as to the function and the correct installation of lightning conductors became more clear, as a result of the investigations then made into electric oscillations, and of the right appreciation of the self-induction of lightning conductors.

Professor Moritz v. Hoór, following up the work of Hertz and Lodge, was the first in our country to treat this question theoretically and experimentally in a scientific manner on the basis of the new principles, and he was the first here to suggest the abandonment of the conductors with collecting points, and the introduction of contour conductors without collecting points, similar to Faraday's parrot cage.

Leopold Stark, chief engineer of Messrs. Ganz & Co., has since made an exhaustive study of this question, and has worked out various practical plans for cage conductors, with a special view to their application to the protection of agricultural objects peculiarly exposed to risk from lightning (cf. *Villámhárítók különös tekintettel mezögazdasági epületekre*, irta: Stark Lipót gépészmérnök, Budapest, Fövárosi Nyomda, 1903).

For some years now, as a result of these works and of the agitation started by the above-mentioned scientists, cage lightning conductors of this kind have been largely in use with us, both on town buildings and on agricultural objects. They consist, as Sir Oliver Lodge, and, long before him, Faraday, suggested, of barbed wire, or strong iron wire, or sheet iron bands, which, following the contours of the roof and building or other objects, conduct to separate earth connections or to connections joined underground by a circular conducting wire.

The cost of such conductors is with us hardly more than that of the conductors with gilt collecting points and copper conducting wires, and they have been found admirably efficacious, as might have been deduced from theoretical reasoning; so that the military authorities both in Austria and Hungary have had all magazines of explosives protected in this manner.

Special care is taken, in setting up these cage conductors, to avoid the sharp curves arising from a sudden change in the direction of the earth conductors, so as to reduce as far as possible the self-induction of the earth connection.

Importance is likewise attached to good earths, but experience shows that if the cage arrangement is well carried out and the number of cage wires not too scanty, even without a very good earth connection the conductor still works satisfactorily.

At present both the cage and the Franklin collecting point system are in use with us; but of late years, especially for agricultural objects, the cage system is coming more and more in vogue, and probably in a short time all the new conductors will be of this kind.

Germany.

The following is extracted from the Regulations of the Electro-Technical Society of Berlin, issued in 1901:—

1. The lightning receivers should consist of vertical points. The points of towers or gables, edges of the ridge of the roof, tops of chimney stacks, and other high parts of buildings, should be converted into receivers, or be provided with suitable receivers. The conductors should be in metallic connection with the receivers and the earth; they should go round the building, especially in the roof, and if possible on all sides, and then be led from the receivers to the ground by the most direct route, avoiding as much as possible all sharp curves. The earth connections should consist of metallic conductors connected to the lower conductors on the building, and should descend into the ground and extend as far as possible, preferably where the earth is damp.

2. The metallic parts of the building, and masses of metal in and upon it—especially those in contact with the earth and offering large surfaces (such as pipes)—should be connected together as much as possible, and to the conductor also. Special receivers and conductors are rendered unnecessary if these metallic parts of the building comply with the requirements mentioned in paragraphs 1, 4, and 5. Both for perfecting the system and for decreasing cost, the question of utilising the pipes as conductors should be considered when erecting new buildings, making use also as much as possible of all the metallic parts of the building for protective purposes.

3. The protection afforded by a conductor is the greater the more perfectly all the prominent portions of the building are protected by receivers, the larger the number of receivers and conductors, and the more extended the connections to earth. Generally speaking, damage by lightning is diminished if all the metallic parts of buildings of considerable extent are inter-connected, especially if the highest parts are connected to earth, even if these connections are not made specially with a view to protection from lightning.

4. Inter-connected conductors of iron should not have a section of less than fifty square millimetres, unconnected ones not less than a hundred square millimetres. If of copper, half the section is sufficient; zinc must be one and a half, and lead three times the section for iron. Conductors must be securely fixed to resist strong winds.

5. The connections of and to the conductors must be made strong, be of good electrical contact, and with as large a surface as possible. Unwelded and unsoldered connections should have metallic surfaces of contact of not less than ten sq. centimetres.

6. The lightning-conductor system should be repeatedly tested; and when alterations are made in the building, the necessity of alterations in the lightning-conductor system should be considered.

Baurat Findeisen, of Stuttgart, deduces from certain statistics as to strokes by lightning in Würtemberg that there is some doubt as to the efficacy of intercepting rods in attracting and protecting against lightning, and that there is no point in measuring the resistance of lightning conductors, since the high pressure of lightning would overcome even high degrees of resistance. It would be sufficient, he thinks, if all the protecting sheet metal on the roof-ridge and elsewhere were connected with the gutters and rainwater pipes—if the chimney, which is so often struck, were protected by a rope (3 to 4 mm.) of galvanised iron wire, projecting to a height of one-half to one metre above the chimney, and joined as conductor with the protecting metal, and if the water pipes were used as earth connections, they also having a strong wire rope running along them, which, at the lower end, should be untwisted and carried in fan shape about half a metre down into the ground. Four such earth connections at the corners of the building to be protected would suffice. If yet further precautions are desired, galvanised sheet iron might be substituted for this. Lightning conductors of this type have proved their efficiency.

UNITED STATES AND CANADA.

The Hon. Secretary to the Committee, Mr. Killingworth Hedges, who visited the United States and Canada in 1902, reported as follows:—

The general opinion was that owing to the very inefficient protection which had been afforded in the past by the contractors who had installed lightning rods on many public and private buildings, it was gradually dropped out of architects' specifications, and at the present time few new buildings are protected at all; they are often struck, but as the insurance policy covers the loss, little notice is taken, although deaths occur either by direct stroke or from chimneys or masonry falling. I was informed that the present conditions were thought to be unsatisfactory, and that architects and engineers generally would like to be advised as to what protection they should adopt. That large amount of damage by fire caused by lightning does take place, is shown by the reports of the Fire Commissioners. The action of lightning when striking those high steel buildings known as sky-scrapers is peculiar, and is worth investigation, as examination does not show in what direction the current flows to earth. In many cases in New York the buildings are insulated from the ground by the fact that the foundation is blasted out of the rock on which the city is built.

Subsequently I went to Canada, and on the day after my arrival in Toronto a severe storm took place, which caused several fires from gas ignition, and a flash struck the tower of the fine City Hall, shattering the roofing and doing considerable damage. No lightning conductor was installed, but from the advice which I gave the City Commissioner, the building will be specially protected.

REPORT OF THE COUNCIL FOR THE OFFICIAL YEAR 1904–1905.

Approved and adopted by the Annual General Meeting, Monday, 1st May 1905.

SINCE the publication of the last Annual Report the Council have held 17 meetings, of which the Council elected in June last have held 14. The following Committees appointed by the Council have met and reported to the Council on the matters referred to them:—Competitions, Prizes and Studentships, Finance, Sessional Papers, Professional Questions, Board of Professional Defence, London Building Acts Amendment.

Obituary. The losses by death have been as follows:—*Fellows*: William Henry Arber, Walter Aston, James Barnet, Francis William Bedford, Thomas Blashill, James William Brooks, Francis Edward Caws, Richard Knill Freeman, Arthur Green, George Fowler Jones, Frank Manoah Kent, Robert Kerr, John Norton, Arthur Edward Perkins, Ellis Herbert Pritchett, William Alfred Royle, George Hurst Stanger, Frederick William Tasker, James Thomson, Frederick S. Waller, John Thomas Wimperis. *Associates*: Charles Bennett Arding, Percy William Barrett, Norman Michael Brown, Charles John Ferguson, Percy Christian Gibbs, Edward Baldwin John Knox, John Mossop, Samuel Joseph Nicholl, Charles Pertwee, Ernest Simm, Henry Ernest Stelfox, Samuel John Thacker, Thomas Edward Thickpenny, Arthur Charles Wissenden. *Hon. Associates*: James Lewis Thomas. *Hon. Corr. Members*: L. C. Pedro D'Avila, Professor Fenger. Obituary notices of some of the above have appeared in the JOURNAL.

Royal Gold Medal. The Royal Gold Medal was awarded last year to M. Auguste Choisy [*Hon. Corr. M.*], of Paris, Inspector General in the Service des Ponts et Chaussées, in recognition of his distinguished merits as a writer on architecture. M. Choisy came to London to receive the Medal in person. The presentation was made on the 20th June.

It has been decided to award the Medal this year to Sir Aston Webb, R.A., in recognition of his eminence as an Architect. His Majesty the King has signified his approval of the nomination.

Membership. The following tabular statement shows the present subscribing membership of the Institute, compared with that at the corresponding periods of the last two years:

Year	Fellows	Associates	Hon. Associates	Total
1903	627	1,117	43	1,787
1904	644	1,142	43	1,829
1905	677	1,182	45	1,904

During the official year since the last Annual General Meeting 57 Fellows have been elected, 65 Associates, 1 Honorary Fellow, and 3 Honorary Associates.

Examinations.

The Progressive Examinations were held in June and November 1904. The Preliminary was held in London, Belfast, Birmingham, Bristol, Cardiff, Exeter, Glasgow Leeds, Liverpool, Manchester, Newcastle-on-Tyne, and York; the Intermediate in London, Belfast, Bristol, Glasgow, Leeds, Manchester, and Newcastle-on-Tyne. The Council desire to record their thanks for the valuable services rendered by the Hon. Secretaries and Examination Committees of the various Allied Societies. The Final and Special Examinations were held in London. The results are shown in the following tabulated form:

	Exempted	Examined	Passed	Relegated	Total
PRELIMINARY EXAMINATION . . .	116	329	243	86	445
INTERMEDIATE EXAMINATION . . .	3	264	139	125	267
FINAL AND SPECIAL EXAMINATIONS . .	—	140	65	75	140

The total number of candidates was 852. The number of Probationers now stands at 2,305, and of Students at 582. The Council regret that so large a number of Students remain on the list without proceeding to the Final Examination.

The Council, on the recommendation of the Board of Examiners, have given authority to the Institute of Architects of New South Wales to exempt properly qualified candidates from the Preliminary Examination of the Royal Institute, and as a result seven gentlemen residing in Sydney were duly registered as Probationers in June last.

The first Intermediate Examination held out of the United Kingdom took place last November in Sydney, when three candidates were examined. The Board of Examiners have not yet reported the result of the Examination, the papers having only just come to hand.

The Ashpitel Prize was awarded to Charles Lovett Gill, who passed the Final Examination in November 1904.

The Special Examination for Colonial candidates will be held this year in Canada and Sydney.

The Council desire to thank the Board of Examiners for the continuance of their invaluable services.

The Statutory Examinations, qualifying for Candidature as District Surveyor in London, and for Candidature as Building Surveyor under Local Authorities, were held in London in October. Certificates of competency to act as District Surveyors in London have been granted to Percy John Black, John Moir Kennard [*A.*], and John Todd.

Prizes and Studentships.

The Deed of Award of the various Prizes and Studentships was presented to the Institute at a General Meeting on the 23rd January. At the distribution of Prizes on the 6th February, after the Address to Students by the President, there was read a criticism by Mr. A. N. Prentice [*F.*] of the work submitted. An exhibition of the drawings was held from the 24th January to the 4th February in the Gallery of the Alpine Club, and was visited by 1,400 persons. A selection from the Prize Drawings is now being sent the round of the Allied Societies.

Annual Dinner and Social Functions.

The Annual Dinner was not held last year. It will take place this year on Friday, the 13th October, in Newcastle, under the auspices of the Northern Architectural Association. An interesting programme for the visit will be arranged, and the Council hope that many members will see their way to attend.

The last of the "At Homes" given by the late President, Sir Aston Webb, R.A., was held on Saturday, the 18th June. The interesting feature of the occasion was an Exhibition of Architects' Sketches and Water-colour Drawings.

The President has kindly continued the practice inaugurated by his predecessor, and his first "At Home" took place on the 16th January. The Exhibition consisted of works of sculpture executed in connection with architecture.

Registration. The Registration Committee appointed last Session, and constituted as described in the last Annual Report, began their labours too late in the Session for any effective result, as the Council elections in May very considerably changed the *personnel* of the Committee. The new Committee early in the present Session appointed a Sub-Committee which has met monthly, holding morning and afternoon sittings. A Bill for the Enrolment of Qualified Architects prepared by the Sub-Committee with the assistance of Counsel has been considered by the General Registration Committee, who have referred it back to the Sub-Committee for emendation. The Registration Committee hope to submit it for the adoption of the Institute at an early General Meeting.

Education. It was mentioned in last year's Annual Report that the Council had under their consideration the proposals of a Committee on Architectural Education consisting of members and non-members of the Institute which they had appointed. The Council have approved of these proposals, and have established a Board of Architectural Education with a mandate to prepare a scheme for the coordination of Architectural Education throughout the country, and to secure, if possible, its adoption in the various schools. Of this Committee Sir Aston Webb, R.A., is Chairman, Mr. Basil Champneys Vice-Chairman, Mr. John Slater and Mr. Reginald Blomfield, A.R.A., Hon. Secretaries. It consists of "Members," who are all architects, and "Advisory Members," who are representatives appointed by Universities and other educational bodies. The first portion of the task has been accomplished by the Board, which is now laying the scheme before the teaching centres of the country with a view to its adoption. The scheme, admirably put before the Institute in a Sessional Paper read by Mr. Reginald Blomfield on the 20th February, has been printed in the JOURNAL.

Public Works and Municipal Officials. A Memorial setting forth the disadvantages to the community of Municipal officials being entrusted with the design and execution of architectural works was sent in November last to all the County Councils, Municipal Councils, and District Councils of the United Kingdom. The Council, although aware of the improbability of the principles stated in the Memorial being at once adopted by municipal bodies, yet entertain the hope that the prominence with which this important question was brought before them will have considerable influence for good. A reduced facsimile of the Memorial signed by the Council and by the Presidents of all the Allied Societies was published in the JOURNAL of the 10th December.

The London Building Act. The Council have appointed a Committee, consisting of a Sub-Committee of the Practice Committee, the Chairman and Hon. Secretary of the Science Committee, the Hon. Secretaries of the Art Committee, and Mr. Lacy W. Ridge, to consider and report to them on all matters connected with the London Buildings Acts (Amendment) Bill now being promoted in Parliament by the London County Council. The Council, adopting the recommendation of the Committee, decided to oppose the Bill in Parliament. A petition was deposited, and Mr. Pembroke Stevens, K.C., and Mr. H. Courthorpe Munroe retained as Counsel. The Committee drafted a detailed criticism of the Bill as instruction to Counsel when the Bill should reach the Committee stage in Parliament. Prior to Second Reading, however, the L.C.C. dropped the greater portion of the Bill, retaining only the clauses relating to the Prevention of Fire. The new Bill when received will have the Committee's attention. The most hearty thanks of the Institute are due to the members of this Committee for the self-sacrificing way in which they have carried on their arduous and continuous labours.

Easement of Light Bill.

The judgment of the House of Lords in the case of *Colls* v. *The Home and Colonial Stores* induced the Joint Committee of the Institute and the Surveyors' Institution to drop Part III. of the Easement of Light Bill which dealt with this subject, and also the only other clause relating to a change in the law, *i.e.* Part V., headed "Right to Light passing over Streets," and the Councils of the two bodies have approved the omission. The Bill as now about to be introduced into Parliament by Mr. J. Fletcher Moulton, K.C., M.P., is a Bill of Procedure, providing a simple machinery for the settlement of disputes on the lines of that already organised with regard to party-wall cases.

Board of Professional Defence.

Until last Session the Council had strictly observed the principle of limiting their advice on professional matters to such cases as were not of a purely legal character. Having, however, considered that it might be advantageous to members if this limitation were modified, the Council have constituted a Board of Professional Defence to consider cases of broad professional interest, to give advice, and, subject to the approval of the Council, to take Counsel's opinion on any point, and if necessary and desirable to support the architect's case, financially or otherwise, in a court of law. Up to the present time the cases that have come before the Board have not been, in their opinion, of such a nature as to warrant positive action on their part.

Chartered Societies' Protection Bill.

A Bill making it penal for any unauthorised person to use the title or distinctive letters of a chartered institution was introduced last Session in Parliament, but dropped. It is again before the House this Session. Nine chartered bodies, including the Royal Institute, are promoting the Bill.

Traffic Commission.

In accordance with the recommendation of the Art Committee mentioned in their last Annual Report, the Council have been in communication with the Royal Commission on London Traffic, urging that the views of expert architects be considered on the laying-out of street improvements. It being too late for evidence to be taken, the Commission have promised that the Council's request shall be borne in mind in the event of any definite scheme for the improvement of London streets being contemplated.

L.C.C. By-laws with respect to Drains.

It was mentioned in the last Annual Report that the views of the Institute regarding the L.C.C. By-laws as to the deposition of plans with respect to Drains had been communicated to the Local Government Board, the London County Council, and the London Borough Council. The Council, acting on the recommendation of the Practice Committee, have issued invitations to those of the Borough Councils who expressed themselves as being in sympathy with the Institute to join the Practice Committee in a deputation to the London County Council. The Surveyors' Institution has also been invited to send representatives.

Education of the Public.

On the suggestion of the President, the Council have appointed a small Committee to recommend steps whereby the ignorance of the general public in architectural matters may be somewhat mitigated. The Committee have not yet issued their report.

Past Presidents' Portraits &c.

The Council have had an album prepared containing photogravures of the interesting collection of the portraits of Past Presidents. Blank plates have been left for the insertion of future portraits. The price of the album is two guineas.

The presentation of the portrait of Sir William Emerson by Mr. J. J. Shannon, R.A. [*H.A.*], will take place at an early date. Some delay has been caused owing to Mr. Shannon's long absence in America.

The Council have the pleasure to state that Mr. Solomon J. Solomon, A.R.A. [*H.A.*], has kindly accepted the commission to paint the portrait of Sir Aston Webb, R.A., Past President.

The memorial tablet to Mr. F. C. Penrose, Past President, in the crypt of St. Paul's, was unveiled on 18th June last. The Dean of St. Paul's conducted the service, and Sir L. Alma-Tadema, R.A. [*Hon. F.*], performed the ceremony of unveiling.

Appointments &c.

The Council, at the invitation of H.M. Government, suggested the names of seven architects for the proposed extension of the British Museum. Mr. J. J. Burnet, A.R.S.A. [*F.*], was the architect selected.

At the request of the Minister for Foreign Affairs that the Council would advise him as to two architects whose names he might, in response to invitation, submit to the Dutch Government as fitting persons to be invited to prepare designs in an international competition for the Carnegie Foundation—"The Palace of Peace"—at the Hague, and as to a third who could serve on the International Jury, the Council nominated the President, Mr. John Belcher, A.R.A., and Sir Aston Webb, R.A., to represent Great Britain in the competition, and Mr. T. E. Collcutt, Vice-President, to serve on the International Jury. The Council have since learned through the Genootschap "Architectura et Amicitia" of Amsterdam that the Carnegie Foundation Commission have decided to throw the competition open to all architects, while at the same time specially inviting representative architects from the various countries to compete.

Mr. W. H. Atkin Berry [*F.*] has been appointed as an additional representative of the Institute on the Committee of the Coal Smoke Abatement Society.

The President and Mr. J. S. Gibson [*F.*] were appointed by the Council to represent the Institute on a deputation from various bodies to the Croydon County Council with regard to the proposed demolition of Whitgift Hospital, Croydon.

The honour of knighthood has been conferred during this year on Sir Aston Webb, R.A., Past President, and Sir Henry Tanner [*F.*], Chief Surveyor to H.M. Office of Works.

Bequests and Donations.

The Institute has received a bequest of £1,000, under the will of the late J. T. Wimperis [*F.*], to be applied to the furtherance of architectural education or the interests of the Institute in any way that may seem good to the Council.

Sir Aston Webb, R.A., has presented the Institute with 19 shares, and Mr. J. Macvicar Anderson with 24 shares, in the Architectural Union Company, the income to be applied, at the discretion of the Board of Education, to the furtherance of architectural education.

Grants.

Since the issue of the last Annual Report the Council have made the following grants:

The Cretan Exploration Fund, 50 guineas.

The British School at Rome, 20 guineas.

The Manchester Society of Architects, £25 for educational purposes.

They have also voted a grant of 100 guineas towards the expenses of the defendant in the case *Gibbon* v. *Pease* with regard to the ownership of drawings lately heard before the Court of Appeal.

They have further voted a grant of £500 to the funds of the Seventh International Congress, London 1906, the grant to be spread over two years.

Seventh International Congress.

The Council desire to draw the special attention of members to the importance of this Congress, which will be held in London from the 16th to the 21st July next year, and to express the hope that it will be loyally supported. To conduct this large undertaking on a scale worthy of Great Britain and British Architecture will need considerable outlay, and the Council take this opportunity of expressing the hope that every member of the Institute will contribute to the funds by enrolling himself as a member of the Congress. Following the precedent of the previous six Congresses, there will be two classes of members—contributing members and subscribing members—whose dues are £4 and £1 respectively. A preliminary notice has already been issued by the Executive Committee and printed in full in the Journal of the 28th January 1905, and in *The Times* of a few days later. The Executive Committee are in communication with all the Architectural Societies abroad and the various foreign sections of the Permanent International Committee, and as soon as all the replies from these have been received will issue a more detailed programme.

Competitions.

The following have been the late and present President's appointments to Assessorships during the official year:

Aberystwith	Public Library	Mr. S. B. Russell.
Bexhill-on-Sea	Schools	Mr. A. H. Ryan-Tenison.
Bristol	Imbecile Institution	Mr. Edwin T. Hall.
Bromley	Municipal Buildings	Mr. J. S. Gibson.
Bucks	Royal Latin School	Mr. H. W. Wills.
Coventry	Hospital Extension	Mr. Edwin T. Hall.
Epsom	Church	Mr. G. H. Fellowes Prynne.
Grantham	Church	Mr. G. H. Fellowes Prynne.
Leigh	Schools	Mr. Mervyn Macartney.
Radcliffe	Free Library	Mr. John Holden.
Stockport	Elementary Schools	Mr. Alfred Darbyshire.
Taunton	Schools	Mr. Charles Hadfield.
Wallasey	Municipal Buildings	Sir William Emerson.
Wandsworth	Baths	Mr. A. Hessell Tiltman.
Worthing	Free Library and Technical Institute	Mr. John Belcher, A.R.A.

Copies of the "Suggestions" have been sent to the promoters of the following competitions, together with letters requesting that a copy of the conditions should be sent for the Institute Library. In cases where the conditions have been unsatisfactory, letters urging modifications have been sent to the promoters.

Aberystwith: Public Library.
Aylesbury: Schools.
Ayr: Pavilion.
Banbury: Municipal Offices.
Benwell: Public Library.
Blaenau Festiniog: Assembly Rooms.
Bootle: Memorial.
Bristol: Police Courts and Fire Station.
Bromley: Municipal Buildings.
Bury St. Edmunds: Shire Hall.
Calne: Public Library.
Caversham: Schools.
Cheltenham: Elementary Schools.
Cheshunt: Public Library.
Chippenham: Schools.
Colchester: Schools.
Croydon: Schools.
Dundee: Church.
Dunfermline: Library.
Egremont: Public Offices.
Egremont: Schools.
Fazakerley: Church.
Glasgow: Church.
Glasgow: Memorial.
Grantham: Church.
Hampstead: Mortuary.
Handsworth: Schools.
Herne Hill: Church, Parish Hall, and Vicarage.
Ilford: Free Library.
Lambeth: Home for Aged Poor.
Lambeth: Municipal Buildings.
Lancaster: Municipal Buildings.
Leeds: Schools.
Leigh: Schools.
Liverpool: Church.
Liverpool: Tramway Offices.
Llanelly: Schools.
Lurgan: Labourers' Cottages.
Nelson: Free Library.
Newcastle-on-Tyne: War Memorial.
Northwich: Schools.
Ossett: Town Hall.
Otley: Infirmary.
Perth: City Hall.
Peterborough: Free Library.
Preston: Elementary Schools.
Radcliffe: Free Library.
Rochester: Technical Institute.
Southwark: Clock Tower.
Stamford: Public Library.
Stockport: Elementary Schools.
Sunderland: Schools.
Swindon: Schools.
Taunton: Schools.
Tweedmouth: Schools.
Uxbridge: Union Offices.
Wallasey: Municipal Buildings.
Wallasey: Schools.
Wallsend: Municipal Buildings.
Welshpool: Laying out Open Space.
Whitehaven: Public Library.
Wrexham: Library.

The Competitions Committee have amended the "Suggestions," which they propose henceforth to call "Regulations," and the Council have approved the Committee's recommendations. The Amended Paper will be submitted to the General Body at a Business Meeting on the 1st May.

Finance. A statement of income and expenditure, and the balance sheet for the year ending 31st December 1904, and the estimate of income and expenditure for the current year, are appended to this Report (pp. 50 *sqq.*).

The balance of income over expenditure is £1,680, the largest on record, which the Council venture to think is a proof of the continued financial prosperity of the Institute.

The Council have this year invested the sum of £1,500 in the purchase of Cape of Good Hope 3½ per cent. stock and £1,000 in the purchase of Great Northern Railway 4 per cent. Preference stock. The total invested capital of the Institute now amounts to £18,000.

REPORT OF THE ART STANDING COMMITTEE.

At the first meeting of the Committee Mr. J. Macvicar Anderson was elected Chairman, Mr. Ernest George Vice-Chairman, and Messrs. J. S. Gibson and W. D. Caröe Hon. Secretaries.

During the Session the Committee have held three meetings, and have had under consideration the following matters:

The Widening of Berwick-on-Tweed Bridge;
The Wood Pediments and Dome of Somerset House;
The Advertisement Abuses on Buildings;
The Royal Commission on London Traffic.

The matter of the widening of the fine old stone bridge at Berwick-on-Tweed has been again before the Committee, and by the courtesy of Mr. Reade [*H.A.*], Messrs. Reade & Riley's designs for the proposed works were laid before the Committee, and it was felt that the engineers had, on the whole, dealt satisfactorily with the difficult problem of widening an old structure. In some small matters of detail Mr. Reade kindly consented to consider the suggestions of the Committee, and to bring before it at a later date the detailed drawings for the proposed works. It was felt that the character and interest of the bridge had been safeguarded, and in some measure this had been done in consequence of the action of the Committee.

With regard to the present wood pediments and dome on the centre part of Somerset House, fronting the river, the Committee felt that some action should be taken, and consequently forwarded a Resolution to H.M. Office of Works that it was desirable to replace the present wood pediments and drum of the dome by Portland stone, carrying out the existing design. There are no apparent structural difficulties in the way of this being done, and it was considered that a more permanent material would harmonise with the monumental character of the buildings. Beyond a formal acknowledgment of the Committee's letter, no reply has been made by H.M. Office of Works, and it is felt that this matter is of such public importance as to warrant a further letter being sent to the Office of Works.

The Committee forwarded to all the Metropolitan Borough Councils a communication respecting the abuse of advertisements on buildings with a view to enlisting their support and sympathy, and were gratified to have responses from ten Metropolitan Borough Councils expressing their sympathy with the objects in view; and a resolution was therefore sent to the London County Council drawing attention to the abuse of many buildings in prominent London streets by being disfigured with advertisements which were practically of a permanent character, and suggesting that the London County Council should obtain powers to prevent the disfigurement of streets and buildings by advertisements.

With respect to the Royal Commission on London Traffic the Committee suggested that in all future schemes of public improvements for London streets the Institute should be consulted at an early stage with respect to their architectural aspect and development, and it is satisfactory to note that the Royal Commission, in acknowledging the receipt of the suggestion, stated that in future works of this character the Institute would be consulted in the initial stages.

Had this been done in the matter of the alignment of the north frontage of the Strand Improvement Scheme it is probable that the view from the west of St. Clement Danes Church would have been preserved; by proposed mutilation half of the west front of the church will be hidden by the new north frontage of the Strand; and it is deeply to be regretted that the advice of the Institute in this matter was not asked.

REPORT OF THE LITERATURE STANDING COMMITTEE.

Since the election of the present Committee in June 1904 the Literature Committee have held seven meetings. At the first meeting Mr. R. Phenè Spiers was reappointed Chairman; Mr. Paul Waterhouse was appointed Vice-Chairman; Messrs. Leslie Waterhouse and A. Maryon Watson were appointed Honorary Secretaries.

Acting in accordance with previous custom, a list of Sessional Papers arranged for by the Committee was forwarded to the Council, and as the result of a letter addressed to the Secretary the Committee have been informed that the Council have decided to entrust the final settlement of the Sessional Papers in future to a small Committee of Council, and to invite the Literature Committee (with the other Standing Committees) to send in during the Session suggestions for two or three Papers on subjects within the Committee's sphere of interest.

The Committee desire again to acknowledge their indebtedness to the authors of the various reviews and articles contributed to the JOURNAL, and to the publishers who have contributed many interesting works to the Library during the year.

The extra grant of £25, again received from the Council, has enabled the Committee to extend the Loan Collection by the purchase of many much-needed works in duplicate; these increased facilities have been much appreciated by the students who use the Library.

The Committee desire also gratefully to acknowledge the increase by the Council of the yearly grant to the Library; the amount of the total grant is now, therefore, £150.

The Librarian reports to the Committee as follows:

During the twelve months ending on the 31st March of the present year 202 volumes and 41 pamphlets have been added to the Library of the Royal Institute, exclusive of periodicals, reports, and Transactions of Societies, and parts of works issued in serial form.

The number of works presented to the Reference Library was 54 volumes and 39 pamphlets. The works purchased comprise 116 volumes, out of which 68 volumes were added to the Loan Library. There were also 32 volumes presented to the Loan Library.

The attendance of readers in the Reference Library numbered 5,577 (last year 4,862). The number of works issued on loan was 3,406 (last year 3,020), 118 volumes having been issued to Fellows, 613 to Associates, 1,119 to Students, 1,060 to Probationers, and 496 to Ticket Holders.

The number of books issued through the post was 98 (last year 76). The number of tickets issued for admission to the Library, other than to members of the Institute or to Students and Probationers, was 88.

A Supplement to the Loan Library Catalogue, comprising additions to the end of 1904, has been prepared and printed. Copies can be obtained on application.

Donations of books have been received from Prof. F. Meldahl, Baron H. F. von Geymüller, Count Robert de Lasteyrie, Mr. Benjamin Ingelow, Mons. C. Nizet, Mr. R. Phenè Spiers, Mr. J. W. Gunniss, Mr. T. Harrison Myres, Mr. Mowbray A. Green, Mr. G. Hubbard, Sig. G. Giovannoni, Mr. Arthur Bartlett, and Mr. J. Francis Doyle.

Amongst the books presented or acquired during the year the following may be mentioned: Guadet's *Elèments et Théorie de l'Architecture*; Bühlmann's *Die Architektur des klassichen Altertums und der Renaissance*; Venturi's *Storia dell' Arte Italiana*; Brogi's *Disegni di Architettura Civile e Militare di Artisti Italiani fioriti dal XV. al XVIII. Secolo tratti dalla raccolta della R. Galleria degli Uffizi*; Havard's *Dictionnaire de l'Ameublement*; Rayet's *Monuments de l'Art Antique*; Geymüller's *Michelagnolo Buonarroti als Architekt*; Spiers's *Architecture East and West*; Green's *Architecture of Bath*; Muthesius's *Das Englische Haus*; Mothes's *Die Baukunst des Mittelalters in Italien*; and Gardner's *Old Silver Work*.

LIBRARY STATISTICS 1904-5.

Date	Day Attendances. 10 a.m. to 5 p.m.					Evening Attendances. 5 p.m. to 8 p.m.					Books issued on Loan.
	Members.		Non-members.			Members.		Non-members.			
	Library.	Periodicals only.	Library.	Periodicals only.	Total.	Library.	Periodicals only.	Library.	Periodicals only.	Total.	
1904.											
April	114	20	142	15	291	61	31	104	27	205	301
May	108	14	206	17	345	46	8	101	12	167	317
June	91	17	175	16	299	40	11	94	16	161	237
July	98	7	126	10	241	29	6	49	6	90	151
August	Reference Library closed.					Reference Library closed.					40
September	102	14	158	10	284	42	5	76	10	133	260
October	110	18	233	21	382	51	16	127	19	213	382
November	99	12	221	17	349	52	11	144	30	237	400
December	98	10	205	16	329	41	11	109	28	189	283
1905.											
January	129	16	223	25	393	52	10	125	17	204	342
February	100	15	196	19	330	54	10	111	27	202	305
March	87	25	171	20	303	48	10	151	21	230	388
TOTAL	1136	168	2056	186	3546	516	111	1191	213	2031	3406

REPORT OF THE PRACTICE STANDING COMMITTEE.

Nine meetings have been held since the last Report. The following officers were elected at the commencement of the Session:—Mr. A. H. Kersey (Chairman), Mr. Ernest Flint (Vice-Chairman), Mr. C. H. Brodie and Mr. E. Greenop (Hon. Secretaries).

The London Building Acts Amendment Bill, 1905.—This new Bill, brought in by the London County Council, was referred by the Council to the Committee, who recommended that a Parliamentary Committee, consisting of representatives of the Standing Committees, should be appointed to consider and report upon the Bill, and, if necessary, take steps to oppose it in Parliament. Acting upon this recommendation the Council appointed a Special Committee, consisting of seven members of the Practice Committee and two each of the Science and Art Committees, Mr. Douglass Mathews being elected Chairman. Ten meetings were held. A Form of Petition to Parliament against the Bill, and praying to be heard in Committee in opposition, was drawn up and adopted by the Council, and Counsel were appointed to represent the Institute before the Parliamentary Committee of the House of Commons.

The whole Bill was considered in detail, and a List of Observations and Suggestions prepared by the Committee. Before, however, the list was placed before the Council the whole Bill, with the exception of Part VIII., dealing particularly with additional protection from fire, was, owing to the extremely strong opposition from all quarters, withdrawn by the London County Council.

The Committee have still under consideration their action with regard to Part VIII. of the Bill, with which the London County Council have expressed their intention to proceed.

City of London Bill (*Means of Escape from Fire*).—This Bill was also referred by the Council of the Institute to the Special Committee, and it is still under consideration.

New By-laws of the L.C.C. under the Metropolitan Management Acts Amendment Act, 62 *and* 63 *Vict.*, *c.* 15.—As stated in the Committee's Report of last Session, the Institute Council, on the recommendation of the Committee, by a circular letter called the attention of the various Borough Councils to the very onerous and unnecessary liabilities imposed on owners of property by these by-laws recently passed by the London County Council. Since the date of that Report, eighteen replies have been received from the Borough Councils addressed, of which nine are more or less in agreement with the Institute, four neutral, and five in opposition. The Committee have therefore recommended the Council to try to arrange a deputation of representatives of the Borough Councils, the Surveyors' Institution, and the Royal Institute of British Architects to attend on the L.C.C. and put forward their views.

Professional Advertising.—The question of members of the Institute advertising in newspapers, as practised in some cases in the provinces, was referred by the Council to the Committee, who recommended the Council to take means to prevent or induce its members to discontinue this practice, which they considered derogatory and damaging to the status of the architectural profession.

The question of members of the Institute describing themselves as "valuers" and "estate agents" in newspaper advertisements and elsewhere was also referred to the Committee, who reported to the Council that in their opinion nothing further than the description "architect" or "architect and surveyor" was consistent with the dignity of the profession.

Sessional Papers.—The Council requested the Committee to assist them in the choice of subjects for Papers to be read during the following Sessions, and the Committee expressed their willingness to offer suggestions from time to time.

Extraordinary Traffic on Roads during Building Operations.—The Council referred to the Committee a request by the Institute of Builders that provisions should be made in building contracts by which the charges of county and urban authorities in these matters should be ascertained by architects previous to the making of contracts, and the liability removed from the shoulders of the contractors. The Committee, however, recommended to the Council that the suggestion should not be adopted.

Law Cases.—The cases of *Howard* v. *Colls, Orf* v. *Payton, Robins* v. *Goddard, Patman and Fotheringham* v. *Pilditch,* and others were considered by the Committee.

Members' Queries.—The opinion of the Committee upon several matters affecting the profession was requested by members, and replies furnished.

REPORT OF THE SCIENCE STANDING COMMITTEE.

The Science Committee have held six meetings, with an average attendance of twelve, since the last Report was published.

Mr. Lewis Solomon was appointed Chairman, Mr. Max. Clarke Vice-Chairman, and Mr. H. D. Searles-Wood and Mr. Bernard Dicksee Hon. Secretaries.

The Committee have been engaged on standardising the specification and tests for Portland cement, the Chairman has attended the meetings of the Joint Standard Committee, and the standard has been fixed and is now published. The Committee are now considering the tests that can be put in specifications when only small quantities of cement are required. The Committee are inquiring into the present method of applying Dr. Angus Smith's solution and other preparations for protecting iron.

The Plumbers' Company submitted their second series of diagrams for the criticism of the Committee. The proposal to form a collection of building stones, with full information as to their nature, composition, &c., at the Museum of Geology, Jermyn Street, came before the Committee, and they have recommended the Institute to assist in collecting the information required.

The subject of working loads and stresses has been under consideration.

The Report on the Brickwork Tests is in print, and will shortly be published.

FINANCES.

The accounts of Ordinary and Trust Funds for 1904, prepared by Messrs. Saffery, Sons, & Co., chartered accountants, and audited by Messrs. Sydney Perks [*F.*] and H. A. Crouch [*A.*], the Hon. Auditors appointed at the Annual General Meeting of 1904, here follow :—

Income and Expenditure Account of Ordinary Funds for the Year ended 31*st December* 1904.

Dr. Exclusive of Entrance Fees, Final Examination Fees, and Subscriptions in advance. **Cr.**

EXPENDITURE.

	£	s.	d.	£	s.	d.
To Ordinary Expenditure—						
Rent	935	0	0			
Gas and Electric Lighting	120	4	4			
Coals	15	12	0			
				1070	16	4
Salaries				1760	16	10
General Printing, Stationery, Stamps, and Petty Expenses				673	2	6
Expenses of General Meetings, Exhibitions, &c.				271	14	10
Housekeeping				171	6	2
Advertisements				53	8	9
Examination Expenses				453	3	0
General Repairs				108	16	5
Fire Insurance				33	15	6
Medals and other Prizes				29	4	0
Grants to Library	125	0	0			
Grant to Architectural Association	100	0	0			
Grant to Royal Architectural Museum	21	0	0			
Grant to Architects' Benevolent Society	21	0	0			
Grant to British Schools at Athens and Rome	42	0	0			
Grant to Cretan Exploration Fund	52	10	0			
Grant to Manchester Society Prize Fund	25	0	0			
Grant to International Congress Funds	25	0	0			
				411	10	0
The Journal—						
Reporting	55	13	0			
Printing and Binding	724	19	8			
Illustrations	212	18	1			
Addressing, Postage, and Carriage	272	14	7			
				1266	5	4
The Kalendar -						
Printing	174	1	10			
Postage and Carriage	24	14	11			
				198	16	9
Contributions to Allied Societies				312	10	6
Miscellaneous Expenses—						
Legal and Accountants' Charges	56	1	8			
Album of Portraits of Past Presidents	73	15	0			
Memorial to Local Councils	53	8	6			
Honorarium to Staff	88	13	6			
Madrid Congress	28	17	0			
Miscellaneous	23	5	8			
				324	1	4
Balance of Income over Expenditure				1680	0	6
				£8819	8	9

INCOME.

	£	s.	d.	£	s.	d.
By Ordinary Income—						
Subscriptions—						
628 Fellows at £4. 4*s.*	2637	12	0			
Ditto, on Account	1	1	0			
Ditto, Arrears	68	5	0			
1,060 Associates at £2. 2*s.*	2226	0	0			
Ditto		12	0			
Ditto, Arrears	112	7	0			
36 Hon. Associates at £2. 2*s.*	75	12	0			
Ditto, Arrears	12	12	0			
				5134	1	0
Dividends on Stocks and Shares —						
Architectural Union Co.	184	2	0			
Consols 2½ per Cent.	52	7	4			
Tasmanian Government Stock 3½ per Cent.	63	3	11			
Dominion of Canada 3 per Cent.	34	5	6			
Queensland Government 3 per Cent.	46	18	10			
Great Western Railway 5 per Cent. Preference	35	12	4			
London and North-Western Railway 4 per Cent. Preference	33	3	10			
Madras Railway 4½ per Cent.	64	9	1			
Interest on Deposit	33	12	3			
				547	15	1
Journal and Kalendar—						
Advertisements	900	0	0			
Sales	112	6	10			
				1012	6	10
Sales of other Publications				419	18	10
Use of Rooms—						
District Surveyors' Association	25	0	0			
Architectural Association	6	10	0			
R.I.B.A. Tenants	55	0	0			
Architectural Vigilance Society	5	0	0			
				91	10	0
By sale of Presidents' Album				12	12	0
Examination Fees—						
Statutory	28	7	0			
Preliminary	787	10	0			
Intermediate	564	18	0			
Special and Final (forfeited)	220	10	0			
				1601	5	0
				£8819	8	9

Saffery, Sons, & Co.,
Chartered Accountants.

Examined with the several vouchers and found to be correct. 17*th March* 1905. (Signed) {Sydney Perks [*F.*].
H. A. Crouch [*A.*].

Dr. *Balance Sheet of Ordinary Funds,* 31*st December* 1904. **Cr.**

LIABILITIES.

	£	s.	d.	£	s.	d.
To Sundry Creditors outstanding				230	11.	0
To Examination Fees anticipatory of election				189	0	0
To Subscriptions for 1905–6 received in advance				120	10	0
To Building Fund				1087	6	8
To Charitable Fund				195	14	9
To Travelling Fund				1385	4	0
To *Accumulated Fund*—						
Surplus of liquid assets over Liabilities as per last Balance Sheet	13052	6	8			
Add Entrance Fees received in 1904	357	0	0			
Arrears for 1904 (as per contra)	212	11	0			
	13621	17	8			
Less Arrears 1903, since received or cancelled £246 15 0 Furniture and Fittings bought 34 18 0						
	281	13	0			
	13340	4	8			
Add Balance of Income over Expenditure in 1904	1680	0	6			
				15020	5	2
				£18228	11	7

ASSETS.

	£	s.	d.	£	s.	d.
By Cash at Bank				2372	3	3
By *Investments at cost*—						
Architectural Union Co., 263 Shares	3643	1	0			
Consols 2½ per Cent. £2200 10*s.*	2233	12	2			
Tasmanian Government 3½ per Cent. Stock £1896. 8*s.* 9*d.*	2050	0	0			
Dominion of Canada 3 per Cent. Registered Stock £1200	1219	11	0			
Queensland Government 3 per Cent. Stock £1643. 9*s.* 1*d.*	1550	0	0			
Great Western Railway 5 per Cent. Preference Stock £747	1199	16	10			
London and North-Western Railway 4 per Cent. Consolidated Preference Stock £871	1049	5	8			
Madras Railway 4½ per Cent. Stock £1050	1385	4	0			
By *Building Fund*—						
Indian Government 3½ per Cent. Stock £1004. 4*s.* 1*d.*	1087	6	8			
				15417	17	4
By Debtors (Rents, Advertisements, &c.)				178	15	0
By Subscriptions in Arrear 1903	47	5	0			
Ditto 1904	212	11	0			
				259	16	0
				£18228	11	7

Saffery, Sons, & Co.,
Chartered Accountants.

Examined with the several vouchers and found to be correct. 17*th March* 1905. (Signed) {Sydney Perks [*F.*].
H. A. Crouch [*A.*].

Revenue Account of Trust Funds for the Year ended 31*st December* 1904.

Dr.	£	s.	d.	Cr.	£	s.	d.
ASHPITEL PRIZE FUND :—							
To Cost of Ashpitel Prize [Mr. F. W. Newman (*A.*)]	10	0	0	By Balance from last Account	24	2	0
To Balance carried forward	28	2	0	By Dividend on 20 Shares, Architectural Union Co., at 14*s.* per share	14	0	0
	38	2	0		38	2	0
DONALDSON TESTIMONIAL FUND :—							
To Balance carried forward	5	10	7	By Balance from last Account	2	17	5
				By Dividends on £72 L. & N.-W. Railway 4 per Cent. Preference Stock	2	13	2
	5	10	7		5	10	7
GODWIN BURSARY :—							
To Grant to Mr. H. P. Fletcher [*F.*]	35	0	0	By Balance from last Account	82	3	6
To Balance carried forward	86	7	8	By Dividends on £1030 Caledonian Railway 4 per Cent. Debenture Stock	39	4	2
	121	7	8		121	7	8
GRISSELL LEGACY :—							
To Cash paid Medallist [Mr. J. W. Hepburn]	10	10	0	By Balance from last Account	8	12	6
To Cost of Medals	11	18	0	By Dividends on £20. 0*s.* 8*d.* B Annuity Great Indian Peninsula Railway	13	14	2
				By Balance carried forward	0	1	4
	22	8	0		22	8	0
LIBRARY FUND :—							
To Purchase of Books, Binding, &c.	129	4	6	By Balance from last Account	22	12	3
To Petty Expenses	4	17	1	By Annual Donation from Mr. Sydney Smirke [*F.*]	5	0	0
To Balance carried forward	32	11	11	By Annual Grant from Ordinary Fund	100	0	0
				By Special Grant from Ordinary Fund (Loan Collection)	25	0	0
				By Entrance Donation of Honorary Associates	8	8	0
				By Fines, &c. (Loan Library)	5	13	3
	166	13	6		166	13	6
OWEN JONES STUDENTSHIP :—							
To Cash paid 1903, 1st instalment [Mr. Davidson]	50	0	0	By Balance from last Account	171	7	3
To Cost of Medal	2	0	0	By Dividends on £2128 Midland Railway 2½ per Cent. Debenture Stock	50	14	1
To Balance carried forward	222	9	5	By Dividends on £1100 Great Western Railway 5 per Cent. Consolidated Stock	52	8	1
	274	9	5		274	9	5
PUGIN MEMORIAL FUND :—							
To Balance from last account	6	17	1	By Dividends on £1070 L. & N.-W. Railway 4 per Cent. Preference Stock	40	17	10
To Cash paid Student 1903 [Mr. J. H. Gibbons [*A.*]]	40	0	0	By Balance carried forward	9	8	9
To Cost of Medal	3	9	6				
	50	6	7		50	6	7
SAXON SNELL BEQUEST :—							
To Cash from Executors	750	0	0	By Balance in hand	750	0	0
	750	0	0		750	0	0
TITE LEGACY FUND :—							
To Cash paid Prizeman 1902 [Mr. C. Gascoyne], balance	10	0	0	By Balance from last Account	15	7	4
To Cash paid Prizeman 1903 [Mr. D. Smith], balance	10	0	0	By Dividends on £1150 2½ per Cent. Consols	27	7	8
To Cost of Medal	2	0	0				
To Balance carried forward	20	15	0				
	42	15	0		42	15	0
ARTHUR CATES LEGACY :—							
To Amount paid Prizeman [Mr. F. W. Newman (*A.*)]	21	0	0	By Balance from last Account	32	19	4
To Balance carried forward	56	3	10	By Dividends on £1160 4 per cent. N.-E. Railway Consolidated Stock	44	4	6
	77	3	10		77	3	10

SAFFERY, SONS, & CO.,
Chartered Accountants.

Examined with the several vouchers and found to be correct. 17*th March* 1905.

(Signed) { SYDNEY PERKS [*F.*].
H. A. CROUCH [*A.*].

Dr. *Balance Sheet of Trust Funds, 31st December* 1904. Cr.

Dr.	£	s.	d.	£	s.	d.
To ASHPITEL PRIZE FUND:—						
Capital—20 Shares in the Architectural Union Company, Limited, at £14 per Share				280	0	0
Balance at credit of Revenue Account				28	2	0
To DONALDSON TESTIMONIAL FUND:—						
Capital—£72 L. & N.-W. Railway 4 per Cent. Preference Stock				89	0	0
Balance at credit of Revenue Account				5	10	7
To GODWIN BURSARY FUND:—						
Capital—£1030 Caledonian Railway 4 per Cent. Debenture Stock				1344	13	6
Balance at credit of Revenue Account				86	7	8
To GRISSELL LEGACY FUND:—						
Capital—£20. 0*s*. 8*d*. B Annuity Great Indian Peninsula Railway, formerly £300 5 per Cent. Guaranteed Stock				513	14	10
To LIBRARY FUND:—						
Balance at credit of Revenue Account				32	11	11
To OWEN JONES STUDENTSHIP FUND:—						
Capital—£2128 Midland Railway 2½ per Cent. Debenture Stock	1773	0	0			
£1100 Great Western Railway 5 per Cent. Consolidated Stock	1900	12	0			
				3673	12	0
Balance at credit of Revenue Account				222	9	5
To PUGIN MEMORIAL FUND:—						
Capital—£1070 L. & N.-W. Railway 4 per Cent. Preference Stock				1342	12	6
To SAXON SNELL BEQUEST:—						
Capital Cash in hand				750	0	0
To TITE LEGACY FUND:—						
Capital—£1150 2½ per Cent. Consols				1109	1	6
Balance at credit of Revenue Account				20	15	0
To ARTHUR CATES LEGACY FUND:—						
Capital—£1160 N.-E. Ry. 4 per Cent. Consolidated Stock				1504	5	6
Balance at credit of Revenue Account				56	3	10
				£11059	0	3

Cr.	£	s.	d.
By Government and other Securities for total cost value of Trust Funds invested	9856	19	10
By Balance Pugin Memorial Fund	9	8	9
By Balance Grissell Legacy Fund	0	1	4
By Cash in hands of Bankers	1192	10	4
	£11059	0	3

SAFFERY, SONS, & CO.,
Chartered Accountants.

Examined with the several vouchers and found to be correct. 17*th March* 1905.

(Signed) { SYDNEY PERKS [*F.*].
H. A. CROUCH [*A.*].

The Council submit an Estimate of Income and Expenditure of Ordinary Funds for the year ending 31st December 1905, exclusive of Entrance and Final Examination Fees:—

Estimate of Income and Expenditure for Year ending 31*st December* 1905.

EXPENDITURE.	£	s.	d.	£	s.	d.
Rent, Lighting, and Warming				1100	0	0
Salaries				1780	0	0
General Printing, Stationery, Postage, and Petty Expenses				675	0	0
General Meetings, Exhibitions, &c.				275	0	0
Housekeeping (including Office Attendant)				175	0	0
Advertisements				60	0	0
Examination Expenses				466	0	0
General Repairs				250	0	0
Fire Insurance				35	0	0
Medals and other Prizes				195	0	0
Grants to Library				150	0	0
Grant *re* Gibbon *v.* Pease				100	0	0
Grant to Congress				225	0	0
Other Grants (A.A., A.B.S., and British Sch. Rome)				164	0	0
JOURNAL				1250	0	0
KALENDAR				200	0	0
Contributions to Allied Societies				320	0	0
Miscellaneous—						
Legal Charges (London Building Act)	250	0	0			
Registration Bill	50	0	0			
Legal and Accountant's Charges	60	0	0			
Dinner	50	0	0			
Miscellaneous	20	0	0			
				430	0	0
Estimated Balance				1200	0	0
				£9050	0	0

INCOME.	£	s.	d.	£	s.	d.
Subscriptions and Arrears				5250	0	0
Dividends on Stocks and Shares and Interest on Deposit Account				610	0	0
Sale of Publications (other than JOURNAL and KALENDAR)				425	0	0
JOURNAL and KALENDAR—						
Sales	120	0	0			
Advertisements	900	0	0			
				1020	0	0
Use of Rooms				85	0	0
Examination Fees—						
Statutory	30	0	0			
Preliminary	820	0	0			
Intermediate	610	0	0			
Special and Final (Extra Fees)	250	0	0			
				1660	0	0
				£9050	0	0

AUDITORS' REPORT FOR 1904.

We have carefully examined the accounts of Expenditure and Income for the year 1904, and have much pleasure in reporting that we consider the books of the Institute have been accurately and well kept.

Reference to the Estimate published in last year's Annual Report will show several satisfactory features. A saving has been effected in the following items:—

Lighting and Warming, General Printing &c., Expenses of General Meetings, Advertisements, General Repairs, Medals and Prizes, and miscellaneous expenses. The total Estimate for expenditure for 1904 was £7,185 and the actual expenditure has been £7,139, notwithstanding the fact that several additional grants, amounting to over £120, have been made by the Council.

The actual Receipts amounted to nearly £400 more than was estimated; the result is a larger balance than has ever been carried forward.

During the year the sum of £2,467 6*s.* has been added to the invested Capital; the total is now £15,417 17*s.* 4*d.* The Accountants report that the market value of these investments at the 31st December last was £1,031 less than the purchase value.

The Subscriptions show a small increase, but the Examination Fees were nearly £250 more than in 1903.

We think that on future occasions it would interest members if the profits from the publications were classed under different headings.

We regret that the loss upon the publication of the Album of Portraits of Past Presidents has been so large. The cost was about £145, and only six copies have been sold. If the price were reduced from £2 2*s.* to, say, £1 1*s.* it might help the sale.

The number of the Hon. Associates unfortunately is decreasing, and we suggest that the subscription might be lowered and the entrance fee waived.

We note that the state of the finances is most satisfactory, and were surprised when examining the books to find that the remuneration of the senior officials is not higher, particularly in view of the salaries paid to the officials of other learned Societies.

17th March 1905.

SYDNEY PERKS, } *Hon. Auditors.*
HENRY A. CROUCH, }

DISCUSSION OF THE ANNUAL REPORT.

Mr. HENRY T. HARE, *Vice-President*, in the Chair.

MR. G. A. T. MIDDLETON [*A.*] said there was one clause of the Report upon which he desired to offer some criticism—viz. that dealing with the Registration Committee. When that Committee was formed, he had given notice of certain motions, and had proposed a motion. Had his motion been carried, what the Registration Committee had done would have been in order. But his motion was not carried; an amendment was carried, which he accepted, appointing a Committee "To consider the principle of registration and report thereon"—nothing more. So he should be very sorry to let this go forward unless it was well understood that the Committee, when it did report, would put itself in order and report upon its reference. Only the principle of registration was referred to the Committee; and it was the principle only upon which it had to report. According to the Annual Report the Committee had exceeded its Reference, and although to a certain extent it might be a compliment to himself personally, as showing that his original motion was right, yet he hoped that the Committee, when it reported, would report exactly upon its Reference, at least in the first place, whatever it might do subsequently.

THE CHAIRMAN pointed out that it was hardly open to Mr. Middleton to assume that the Committee was going to report in any sense contrary to or conflicting with the instructions of the General Meeting. It was stated in the Annual Report that the Committee hoped to submit a Draft Bill at an early general meeting. It did not necessarily follow that that would be their report upon the principle of registration. He thought that when the Report was before the Institute would be the time for Mr. Middleton to raise his question.

MR. WM. WOODWARD [*A.*] said he thought they should all agree that there was steady and satisfactory progress with the membership of the Institute. They had 54 more Fellows than in 1903, and 117 more members altogether. If the Institute continued to increase in that proportion they should soon be able, with the funds at their disposal, to commence the erection of the new premises which they all desired, and which he thought they all deserved. With regard to the London Building Act Amendment Bill the Institute must be congratulated upon the action they had taken with regard to it, because that action, combined with the action of many other public bodies, had, no doubt, led to the withdrawal of a great part of that Bill. There was, however, a section left which to his mind was as dangerous as any other portion of the Bill, and he ventured to suggest that every word of that section which was left should be very carefully considered by the technical gentlemen who, he understood, had been appointed to consider it. He believed it would be found that the inroads upon public liberty and the dislocation of people's comfort and the mutilation of their buildings which would take place under that particular section would show that it was by no means the most innocent clause which had been retained by the London County Council. On page 42 there was a reference to the Board of Professional Defence. He thought the Institute was entitled to very great credit for that. Some members had for many years suggested that the Institute should assist by money professional men who were not able to defend themselves from what, in many cases, were most unjustifiable proceedings; and it was very satisfactory to find that the Institute would be able now to assist those poorer members of the profession who suffered and were not able, for the want of funds, to prosecute their own interests in the Courts. On page 42 there was a reference to the education of the public. The suggestion was that a small committee should be appointed to recommend steps whereby the ignorance of the general public in architectural matters might be somewhat mitigated. That appeared to him a very tall order. Upon what lines were they going to educate the public? Who of the members of the Institute felt confident to educate the public? An answer no doubt would occur at once to most of them. There were certain members of the Institute, if one might believe their writings and speeches, who were perfectly capable of educating the public on matters of architecture. One of them in that room the other evening had referred to certain architectural features in Regent Street by which he wished to educate the public. Amongst other things he said that there were two monstrosities on the east side of Regent Street which ought to be at once pulled down. One of those monstrosities, the building on the east side of Regent Street erected for Messrs. Brooks, the florists, he (Mr. Woodward) himself had erected; the other, the bigger monstrosity, as far as cubical contents went, Messrs. Robinson and Cleaver's building—owed its origin to the architects, Messrs. Crickmay. He wanted to be perfectly clear about it, because this was a case in which the public was being educated as to what architecture ought to be pulled down and what architecture ought to be retained! Having referred to the monstrosities, he would pass on to the education of the public. It was his pleasure to pass through Great Portland Street every morning, and he never passed Pagani's Restaurant without looking up and admiring the faïence work which adorned the face of that building, and which was due to the learned Professor who called his (Mr. Woodward's) building a monstrosity. Then, having filled his eyes with the magnificent colour of the façade of Pagani's Restaurant he would proceed to another street, where he found two huge figures sitting upon a pediment carrying the architrave of a second floor window—another of the learned Professor's buildings. He ventured to think that the public would not be satisfied with this professional architecture. Therefore, he must leave the President of the Institute, who had made the happy suggestion of educating the public, to go into fresh woods and pastures new. There was a reference on page 43 to the bequests, and so far as education went they would welcome all the bequests made in that direction. The £100 given towards the expenses of the defendant in the case of *Gibbon* v. *Pease* was an instance of the great good that the Institute could do in supporting such cases. As regards the item of £500 subscribed to the funds of the International Congress of Architects to be held in 1906, that was a very large sum, and no details were given as to how it was proposed to be expended. Personally he had not the slightest idea what the Council's intentions were, but he thought some little information should be given to the meeting as to what was to be done with regard to that £500. On page 45 there was the very satisfactory announcement that the total capital of the Institute amounted to £18,000. He remembered when he filled the position of honorary auditor of the Institute—and it was always a pleasure to him to fill that position—he had ventured to recommend some of the very economies which had since been effected—and he had suggested that the Building Fund of the Institute might be very much increased; he was happy to see that it had been very much increased, and if it went on as it had done the last two or three years they might look forward to the time, at no distant date, when, like the Surveyors' Institution, they should have a building of their own, erected by themselves, really worthy of the Royal Institute of British Architects. As regards the expenditure on the Journal and Kalendar, £1,465 2*s.* 1*d.*; the receipts had been £1,021 6*s.* 10*d.*, making a net cost of £452 15*s.* 3*d.* Considering the great value of the Kalendar and the great value of the Journal they might congratulate the officers and the Council of the Institute upon giving them all that literature at so small a net cost as £452. There was an item on page 50 of £5 under the head of Income, "Architectural Vigilance Society." He did not know what that meant.

The SECRETARY.—That means the rent of the Council Room for the meetings of the Society.

Mr. WOODWARD.—I am glad that architectural vigilance costs so little. Continuing, Mr. Woodward said that there used to be some reference in the balance-sheet under the head of "Assets" to the busts and pictures belonging to the Institute; but there was now no reference whatever as to the property of the Institute under the head of "Assets." Then there was an item of £50 under the head of Expenditure for Registration Bill. No information was given as to how that £50 was proposed to be expended, whether in furthering a new Bill or in supporting the Registration Bill. Then there was a reference in the Auditors' Report to the salaries of the officials. He had, and he supposed most of them had had, very considerable experience as regards the officials of the Institute, whether as auditors or visitors, or as users of the library; and every one would agree that the courtesy, good feeling, and good nature of the officials were such as should highly recommend for them some increase of their salaries. He believed that the Institute could well afford to increase, as the Council might deem proper, the salaries of the officials, and he should be only too pleased, if it was necessary to take any vote upon the subject, to propose it. He was sure it would be found that there was a general desire on the part of members to increase the salaries of its officials who did such good work for them. In speaking of the officials he, of course, included their excellent friend the Librarian: they knew that no trouble was too great for him; whatever he could do to assist the students and themselves with regard to the library his services were always at their disposal. With regard to the Standing Committees, the Art Standing Committee had not much to say; but they spoke of the London County Council obtaining powers to prevent the disfigurement of streets and buildings by advertisements, and no doubt a great deal of good could be done in that way. But there was one thing that the Council might do—he had himself addressed the London County Council on the matter—with regard to pulling down old buildings in London. He happened to be at Nuremberg with a friend some years ago when some very old buildings were being pulled down, and they wondered why there was no dust; and, on making inquiry, the builder showed them a hose and stand-pipe, and told them that they turned water upon the buildings as they were demolished, and on the baskets as they were being carted away. It was a practice he himself had adopted for many years past, and he thought the Institute might endeavour to use its influence with the London County Council to make it a condition that every man who pulled down a building in London should adopt this course of watering the *débris.* It cost not more than £5 per building, it saved an immense amount of trouble, and prevented much injury, not only to passengers from dust getting in their eyes, but to the rooms of the several occupiers. The Literature Committee had made a short report, but it showed that they were doing some good work. The Practice Committee referred to the new by-laws of the London County Council, which they said should be opposed. His experience of the London County Council was this : that if the Building Act of 1894 was not sufficient sometimes to give the architect enough trouble, it would be found that a sly by-law had been passed, about which one knew nothing, which was to give them a good deal more trouble. Therefore the more these by-laws were watched the better it would be for the profession and for the public generally. He was therefore very glad to see that the Institute had taken some notice of the by-laws proposed by the London County Council. With regard to professional advertising and the reference to the use of initials after the name, and to members of the Institute describing themselves as "valuers," he found in *T. P.'s Weekly* of the 28th April last, an advertisement under the head of "Antique Furniture," which referred to "Builders, Decorators, Upholsterers, Dealers in Works of Art, Architects, Surveyors, and Valuers." It would be seen in what estimation Architects were held by their calling being placed in juxtaposition with those of "Decorators and Upholsterers." Therefore the hint conveyed by the Practice Committee was well called for. On page 49 reference was made to the work of the Council with regard to certain law cases ; but they only gave the titles of the cases. If a brief outline of the questions or principles involved were given to show what the case was, and what the action of the Institute was, it would be exceedingly useful in future. On page 49, under the head of the Science Standing Committee, there was a proposal that at the Geological Museum there should be formed a collection of building stones, with full information as to their nature. That was a most excellent suggestion. If one could go to the Geological Museum, which was a central place, and be able to see the various building stones, and get all necessary information about them, that would be a valuable addition to the already very valuable suggestions which had been adopted by the Institute. Coming to another point, a great deal had been said recently about the courts of justice, and the way in which architects were treated in the witness box. Those of them who were in the habit of giving evidence in the law courts must have noticed sometimes the tendency there was on the part of learned counsel to treat architects otherwise than with the respect which was due from one professional man to another. In the witness box one was not on equal terms with counsel. If an architect witness ventured to reply to a learned counsel in the same tone in which he asked a question he would be pulled up at once by the learned judge and told to answer the question. Particularly with regard to architects' charges, he thought when the scale of the Institute was introduced as the proper scale to be adopted, it would have greater weight if some communication were made by the Institute to the proper legal authorities—the Lord Chancellor or whoever it might be—stating that that scale of charges had been well considered by the Council of the Institute, and was a fair and proper scale to be adopted for the profession. Another thing, it was exceedingly regrettable when one found in the witness box an architect —sometimes a member of the Institute—prepared to say that some of the charges in that particular scale were excessive. Surely when they were giving evidence they should stick to that scale religiously. It was a proper scale adopted by the Institute, and whether it was binding in the courts of law or not, they themselves in giving evidence should stick to it as a proper scale of charges. Not to detain the meeting any longer, he was sure all would agree with him that during the last few years the Council of the Institute had shown a more enlightened view of the value of the Institute and of the power which it was possible for the Institute to exercise. He felt that in future more energy even than that which had been displayed during the last few years would be exercised, and its success would be greater still.

Mr. E. W. HUDSON [*A.*] said that with regard to the education of the public in architectural matters, he was entirely in sympathy with the suggestion that some such attempt should be made. He did not see why because it was a difficult thing it was to be shelved ; but who was going to throw the first stone? Already something had been done in the matter of educating the public so far as the municipalities and corporate bodies were concerned. A very proper course had been adopted in sending round that Encyclical Letter with regard to the carrying out of large public buildings being thrown open to competition or given to architects at large, and not confined to municipal officials. That was a step in the right direction. It had provoked adverse criticism and had even been called in a professional journal impertinence ; but an unwelcome duty was none the less a duty, and he, personally, was in entire sympathy with it. With regard to the need for the education of the public and of municipalities, an instance occurred to him at the moment : the municipal authority of a city in one of our largest colonies in South Africa were intending to erect a building to cost over a quarter of a million of money, and having received tenders for it, they were now considering whether, in order to economise, knowing that the tender was under the estimate, they should substitute cement dressings in lieu of stone for the whole of the surfaces ! There, at any rate, was a case where it was necessary to educate the public. He was in accord with Mr. Woodward in his remarks as to the way architects as witnesses were treated by counsel. They were told "not to mind, that every one was subject to it." But there was great difficulty, apart from that, in making the legal mind grasp the details of the architectural profession, and as it was suggested that their Honorary Associates were not as numerous as they might be, he thought it would be a good thing if gentlemen of the Bench and the Bar were invited to come in without any subscription at all that they might get to know architects and understand them better. They must often have felt what a desirable thing it would be if there were a professional gentleman sitting at the side of the Judge to guide him on some of the points which he seemed utterly to fail to grasp in the cases brought before him. He also agreed with Mr. Woodward with regard to the remaining clause in the London County Council's Bill ; it was probably one of the most dangerous that could possibly have been left behind. It was gratifying to see what had been done in the Colonies with regard to architectural education, and if South Africa could ultimately be brought into line with Canada and Australia it would be a great advance. They must all be pleased to see the record of the honours which had been bestowed upon their esteemed Ex-President Sir Aston Webb ; and though it had not been noticed in the Report as an official matter they must all be pleased to see the recognition by his professional brethren that Mr. Spiers had lately received. No one could have worked more and with greater assistance to architects both in and out of the Institute than Mr. Spiers had done throughout his career. He endorsed what Mr. Woodward had said with regard to the Journal. He thought that the small cost at which they had received such an excellent Journal, and a Journal which had been borne witness to by leading members of the profession on the Continent, was a matter of which they might well be proud, and he was sure that their thanks were due to the Editor, Assistant-Editor, and staff for the efficiency to which it had been brought. Reverting to the question of the scale of fees of the Institute, if only they could get the Bench and the Bar to reiterate in their ears the case of *Whipham* v. *Everitt*, where the learned Judge, instead of saying, as in *Tarring* v. *Aldridge*, "You can disregard it altogether," laid it down that though it was not law it was recognised as a fair scale to be adopted, it would be a most excellent thing. It was gratifying to see that the amount of the balance of income over expenditure was £1,680, and that their capital was now £18,000 invested. It struck him, however, that the rent, £935, was rather a large amount for them to pay, and that it really represented five per cent. on a capital of £18,700. In conclusion, he thought that the Report should be received with considerable satisfaction.

Mr. C. H. BRODIE [*F.*] referring to the paragraph on page 40, "The Council regret that so large a number of students remain on the list without proceeding to the Final Examination," suggested that a little gentle pressure might be brought to bear upon those men, which would force them into the Final Examination. This was an ordeal they certainly ought to face. If the Council had not already the power to take any action the Institute would have very little hesitation in granting it to them. It was satisfactory to read that no fewer than 1,400 persons visited the exhibition of Students' Drawings submitted for the Prizes and Studentships. It was also a matter for great congratulation to read such a paragraph as that appearing on page 43, where they learnt that the Council had done something at the invitation of his Majesty's Government. That was the kind of paragraph they would like to see plentifully scattered over the Annual Reports of the Institute. They would like to read that not only His Majesty's Government, but all the great municipalities and corporations, not only in this kingdom, but in the colonies, applied to the Institute when they wanted assistance, and he was quite sure that they would get the information they desired. There was a paragraph which stated that two of their body had been appointed by the Council to represent the Institute on a deputation to the Croydon Council with regard to the proposed demolition of the Whitgift Hospital there. Members would look forward with some anxiety to read the result of that deputation's visit. The memorial which was sent out by the Institute calling attention to the fact that works of magnitude should not be entrusted to engineers—for that was what it amounted to—had not perhaps received all the attention it deserved. He had made some special inquiries with reference to that matter, and in two cases in which he had been in a position to make such special inquiries he found that the memorial had not received any attention whatever. It was pointed out to him by members of those particular corporations that it might have been better perhaps if the Institute, in sending out the memorial, had asked that it should be referred to the proper committee. They all knew what took place at a meeting of a large and busy council. Something came up and the clerk said: "I have received a memorial"—and produced it; and then some gentleman at the table said: "What is it; does anyone know anything about it?" and nobody did. Then another man would promptly propose that it should lie on the table, and that was the end of it. He suggested that it would be wise to follow up that memorial by sending out a letter to the various bodies asking what had been done with it, and expressing a hope that it had been referred to the committee that dealt with matters of that kind. Another matter, which, he was delighted to know, had already been brought up, was the action of the Practice Committee, and afterwards of the Council, with reference to the newly-framed by-laws of the London County Council. Those by-laws were most drastic, most unnecessary, and of a most arbitrary character, and they should not be allowed to stand. It was perfectly monstrous the amount of work forced upon architects and the amount of costs forced upon owners in consequence of those new by-laws. Now that they had had a number of sympathetic replies from the various London municipalities, the time had come to follow up the sympathy by strenuous action. Those by-laws should be somehow "squelched"; they were useless and almost impossible, as he could give many instances to prove. Mr. Woodward had mentioned that a communication might be sent to the proper legal luminary as to the scale of charges; but he remembered that when he was Secretary to the Practice Committee some such communication had been sent. Perhaps the Secretary could tell them what was the result, and some reference might be made in the Journal to the paragraph which no doubt appeared at the time. It was quite within his recollection that some such communication had been sent and that they received a favourable reply. The Report of the Practice Committee was always of an interesting character, and as he happened to know something about the work which that Committee did he was always pleased, in that room, to mention the fact that that Committee did an enormous quantity of work of a most valuable character, deserving the full consideration of the Institute and the Council of the Institute. He was particularly pleased to mention his colleague Mr. Greenop, for the enormous amount of work Mr. Greenop had done for the Institute was beyond all praise, and he was sure that every member of the Practice Committee present would agree with him. He mentioned last year the fact that the Report on the brickwork tests had not been published, and he was very pleased to read in the Report of the Science Standing Committee that the result of those tests was in print and would shortly be published. It was a great pity that they had not been published before. With regard to another part of the Institute work which was mainly the result of the work of the Practice Standing Committee—viz. the Easement of Lights Bill—he regretted to read, if it was the fact—he was not sure that he rightly understood it—that in the Bill there was to be no clause which should prevent after a certain date the accrual of rights to light. No Bill would be satisfactory which did not contain a clause to the effect that after a certain date no new ancient lights could possibly arise; and if any information could be given to the Institute on that particular point he should be exceedingly glad.

Mr. A. A. HUDSON [*H.A.*] said that as two or three things had been said about counsel, perhaps he might say something in their defence. He did not know what Mr. Woodward's experience had been, but he did not think that the counsel who cross-examined him could have had much experience, because the last thing an experienced counsel would do would be to cross-examine any architect or surveyor in a hostile way, because any hostile cross-examination of that kind or offensive cross-examination, must recoil upon the person making it. He had known some of the most experienced cross-examiners, men who had had great experience of arbitration work, and he had never known them treat a professional witness offensively; in fact it would recoil upon themselves if they did. With regard to the scale of charges, he did not know whether he should be saying anything which was new to the Institute, but he had always regarded the scale of charge of 5 per cent. as one which was very undesirable; not that he thought that 5 per cent. was too much, but because he thought it was too little. As Lord Coleridge once said, it was a form of Trade Unionism. He had often to sit as arbitrator between masters and men, where workmen tried to regulate the scale of charges at so much per hour, and that was really trade unionism—they always tried to reduce everyone to a dead level. It seemed to him that there were architects chiefly in London, and some distinguished men in the provinces, who were very badly paid at 5 per cent. The effect of the 5 per cent. was to level up the men who had only just joined the profession and were entitled to receive 5 per cent., with men who had spent years in the profession and years of study, and who still were only entitled to the same 5 per cent. No other profession was so treated. He should be very sorry if the Bar were to level everything down to a particular fee. He did not know how the Bar would exist if that were the case. Take the engineers. Nobody ever heard of the engineers fixing any particular scale. There were certain engineers who said, directly one entered their room, "We must have fifty guineas for opening our mouth. We do not talk to you under fifty guineas." He did not see why the architects should not do the same. It was a very undesirable thing that any scale levelling up and levelling down should be adopted. No one could legally take the scale of any body except as against themselves; so that the difficulty the Institute was in was this: that supposing a distinguished member of the Institute, who felt himself entitled, it may be, to 10 per cent., went into the box, it was said at once, "But you belong to a Society called the Royal Institute of British Architects, who say that their scale is 5 per cent. Surely you cannot charge beyond that." So that a distinguished man, or a man who might devote an enormous time to work, was tied to that 5 per cent. He was quite aware that there were rules saying that in particular cases of decorative work, and so on, the man was entitled to charge more; but that would not meet the case of exceptional ability. A man of exceptional ability should be entitled, if he pleased, to charge a very large sum. If he (the speaker) might put himself in the position of being an architect and a member of the Institute who had come to the top of the tree, he should feel very much inclined to retire because he could not charge the fees he wanted to. He thought it was a very serious thing for architects. He did not know what the Bar would say if their leaders were only allowed to charge what any junior could charge. It had been suggested that a letter should be written to either the Lord Chancellor or the Lord Chief Justice, recommending that this scale of charges should be more attended to than it had been. The difficulty of attending to any such application was that one could not get away from the rule that a person was entitled to be paid a reasonable charge. Now the only persons whose charges were regulated by Parliament were cabmen and solicitors. He did not know why they should wish to be in the position of cabmen, though they might wish perhaps to be in the position of solicitors. One word with regard to the London Building Act—and he was obliged to be guarded in what he had to say because of being a member of the tribunal; but he would suggest to the Institute that the desirable thing was to make an elastic Bill. At the same time elasticity wanted very careful guarding. If elasticity were given, the door would be open to bribery and corruption. Therefore it seemed to him that first of all there must be rules—that obviously must be the case. Secondly, there must be an opportunity for the Council to consent to variations of those rules; and, thirdly, there must be an appeal from that consent; but in order to avoid injustice to persons affected by such consent, a much wider area must be given to appeals, so that not only the person who had asked the consent and had been refused should be allowed an appeal, but his neighbours, for instance, if it were a request to bring out a front, who would be affected by it, should also have an opportunity to appeal against the consent. So that if elasticity is given, there must be checks upon it in order that it should not be an injustice to adjoining owners or to persons affected by the consent.

Mr. DOUGLASS MATHEWS [*F.*], referring to the Bill dealing with the fire clauses, said that the suggestion which Mr. Woodward had made had been fully carried out by the Committee in charge of the matter. They had gone word by word through the Bill, as he did not think it had received that full consideration by the London County Council which was absolutely necessary for a measure of such importance; if the clauses were passed as they now stood they would be so impracticable that the Act would be a dead letter. That led him to refer to a remark made by Mr. Hudson. He was glad to find that the consideration the Committee had given to the matter coincided with what he had said. They did not mind what discretionary power was given either to the London County Council or the Superintending Architect or District Surveyor, provided their decisions were subject to the Tribunal of Appeal. What they felt was that they could not at present get to the fountain-head. The report made by their officers on applications might be favourable or unfavourable; one did not know whether their reports were taken or whether they were objected to by members of the Committee. Those who were interested in the matter of these applications should have an opportunity of going face to face with those who had to adjudicate. Therefore elasticity was absolutely necessary, not only with the fire clauses, but with the whole Act; and as an Act is to be brought forward next year, that was the basis the Committee had gone upon throughout. With reference to the demolition of buildings, Mr. Woodward was probably aware that by-laws had been made by the Corporation of the City of London for that very purpose; and through the action of the Institute, what would have been a most unworkable Bill had been made a workable one. The Committee expressed their opinions to the Corporation, and some of their suggestions they adopted, others they did not. The Committee, however, had deemed it of such importance that they had placed their suggestions before the Secretary of State prior to his approval being given. The Committee felt that the idea was a good one and should be carried out, not only in other parts of London, but also in the provinces. In the proposed amending Bill by the London County Council of next year this matter was to be dealt with.

Mr. MAX CLARKE [*F.*] said that as Mr. Brodie had expressed his regret that the results of the tests of brickwork had not been published, he would not like that expression of regret to go to the members as implying any laxity either on the part of the Science Committee or of the officials of the Institute. The delay was entirely his, and he apologised at once to the Institute for being so late. The papers had been in print for some considerable time, and he had been asked to revise the documents, but he had been so busy that he had been unable to attend to it.

Mr. MAURICE B. ADAMS [*F.*] said that Mr. Brodie had referred to the fact that some considerable number of students did not proceed to the end of their course. It struck him that that remark might be also applied with advantage to certain members of the Institute who remained Associates when one would think that they ought to become Fellows. He did not wish to make any invidious remarks, but it did seem a pity that many men—for instance, like the late Mr. S. J. Nicholl, whose work they had every reason to be proud of—should have remained to the end of a very long life only an Associate of the Institute. With regard to the treatment of architects in the Law Courts, where he happened to have had some little experience, nothing had struck him more with regret than that members of their profession should be prepared to come forward as expert witnesses and give such very variable views on certain questions of fact. Personally he had experienced great difficulty in getting architects of standing to come forward at all for that very reason. They felt that it was such an unpleasant matter to go into Court and be met by persons who were prepared to give evidence in the particular way they did, which was far too common; and so they declined to come forward to give evidence where they could otherwise have been of the utmost service in the cause of justice. Anybody who had had experience of the Courts recognised that counsel sometimes were constrained in cross-examination to adopt methods which otherwise they would not do in consequence of what is here alluded to, and architects had therefore a great deal to blame themselves for in the want of respect shown them sometimes in the Courts. He had listened to cases from which he had come away heartily ashamed that men should be prepared to give evidence in that way. With regard to fees, Mr. Hudson had told them that an engineer would tell a client plainly at once that his fee before he began to talk about the matter he was consulted on would be say fifty guineas. He supposed an architect might do the same; there was no reason why an architect should not charge ten per cent. if his position warranted it; and no doubt he did do so. He himself was repeatedly asked by clients when first approaching him what his charges were, and it was quite obviously only business to state them at once; and this he always did. If architects made a rule of doing this, half the cases that were brought into the Courts would not have to be tried at all. It was a very simple matter. If a copy of the scale of charges were sent to the client and he were told at the outset, "Those are my charges," the Court would not for one moment have occasion to discuss the matter. The client being told at the outset what the fees were, there was an end of the matter.

Mr. E. W. HUDSON said he should not like it to go forth that there was any similarity in the work and charges of architects and the briefing of learned counsel, as Mr. A. A. Hudson had suggested. The former was liable to be taxed upon the scale of the Institute if he did not bargain for a larger fee on account of his "eminence" beforehand, and he was bound to carry out with reasonable skill and proficiency every item he charged for. Barristers received an honorarium, and the extent of attention any particular case received from a leading counsel was undefined, and much was left to juniors when the former were, as often happened, in another Court.

Mr. ALFRED DARBYSHIRE [*F.*] referred to the onerous duties performed by their Hon. Auditors, Mr. Sydney Perks [*F.*] and Mr. H. A. Crouch [*A.*], and asked that the best thanks of the Institute be accorded them for their services.—The vote, having been seconded by Mr. Herbert Davis [*F.*], was carried by acclamation, and briefly responded to by Mr. Sydney Perks.

The CHAIRMAN, replying to the questions raised during the discussion, said that with regard to the sum of £50, expenses in connection with the Registration Bill, that sum was put down entirely for expenses of solicitors and counsel in attending the meetings and in assisting in the drafting of the Bills which had been before the Committee. As regards the sum of £500 put down for the International Congress to be held next year, he could not say at present how that money was to be expended; but they hoped and intended to do their best to carry out the Congress in a manner worthy of the Institute, and commensurate with its importance. They in England suffered to a considerable extent from the fact that they did not, as other countries, get any grant from the Government towards the expenses of a Congress of this kind. There was no doubt that the expenses would be very heavy indeed—probably four or five times as large as the sum provided—but those expenses would all be properly returned, so that they could see how the money had been spent. With regard to the Sub-Committee on the Education of the Public, no doubt it was rather a difficult matter. The public wanted a good deal of educating, but it was not at all an impossible thing to take such steps as would conduce in some way to a better appreciation by the public of architectural works. It had always appeared to him a very lamentable thing that whenever a building was referred to in any of the non-professional journals or papers, the author was usually a man who knew absolutely nothing about the subject he was writing about; he wrote in a manner which was most misleading to the public, and which did not convey the least idea of what the building was like, or lead to any intelligent appreciation of it. A Committee of this kind might bring some influence to bear upon the editors of the public Press. It might suggest to them that when such articles had to be written they should be written by a person who knew what he was writing about. That was one way in which the education of the public might be assisted in architectural matters, and no doubt when the Committee made its report they would have a good many valuable suggestions. With regard to the Memorial as to the employment of public officials, Mr. Brodie had expressed an opinion that in all probability in many cases the document had been put on one side, and would have no effect at all. He also suggested that the memorial might with advantage be followed up by a letter reviving the attention of the Corporations to that memorial. That suggestion, no doubt, would be considered; but he thought himself that although perhaps in many cases the Memorial had been laid on one side, it would still not be without its effect. In every Corporation there was always an opposition; and he thought it would give them a handle, in all probability, with which they might worry those members of their body who were wishful to consult a very doubtful economy, to the detriment of efficiency With regard to the scale of charges there was no doubt that the Institute scale was open to a great many objections, and it did not meet many cases which arose. He quite sympathised with what Mr. Hudson had said, that a man who was in an eminent position was expected to be content with the same fees as a beginner in the profession. But that was not the intention of the scale of charges as it stood. The intention was that it should be a sort of minimum; that when a man got into such a position that he could demand a higher scale of remuneration, he was perfectly at liberty to do so—of course, if he gave his client due notice in the first instance that he intended to do so. The scale of charges, however, was now being referred to the consideration of the Practice Committee with a view to its reconsideration and to the drawing-up of what they hoped would be a more satisfactory scale.

The Report, having been put to the meeting, was then carried unanimously.

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9, Conduit Street, London, W., *6th May* 1905.

CHRONICLE.

ARCHITECTURAL COMPETITIONS.

After the business special to the Annual General Meeting was concluded last Monday, the Meeting proceeded to the discussion of the Paper on the Conduct of Architectural Competitions as revised by the Competitions Committee, and which they propose should be issued under the title "Regulations for Architectural Competitions." The amended Paper is as follows :—

REGULATIONS FOR ARCHITECTURAL COMPETITIONS.

APPROVED BY THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

If the Promoters of an intended Competition desire Members of the Royal Institute of British Architects to take part therein, the Conditions should be based on the following Suggestions :—

1. The Promoters of an intended Competition should, AS THEIR FIRST STEP, appoint one or more professional Assessors, architects of established reputation, whose appointment should be published in the original advertisements and instructions. The selection of an Assessor should be made with the greatest possible care, as the successful result of the Competition will depend very largely upon his experience and ability.

   The President of the Royal Institute of British Architects is always prepared to act as honorary adviser to Promoters in their appointment of Assessors.

   All the designs sent in should be submitted to the Assessors.
2. The duty of Assessors should be, after conference with the Promoters—
   - (*a*) To draw up the particulars, conditions, and suggestions in accordance with ~~the principles herein set forth~~ these regulations as Instructions to Competitors, such documents to be so drawn up as to form an agreement between the Promoters and the Competitors, and also to advise the Promoters upon the question of cost and the amount and apportionment of the premium or premiums.
   - (*b*) To determine whether the designs conform to the instructions, and to exclude any which do not.
   - (*c*) To advise the Promoters on the relative merits of the designs admitted to the Competition, and to make a selection in accordance with the instructions.

     Note.—It is essential in drawing up the Instructions to state definitely which of the conditions must be strictly adhered to, and ~~those~~ which are merely optional or of a suggestive character.
3. No Promoter of a Competition, and no Assessor engaged upon it, nor any employee of either, should compete, or act as architect, for the proposed work.
4. The number, scale, and method of finishing of the required drawings should be distinctly set forth, and they should not be more in number, or to a larger scale, than necessary to clearly explain the design, and such drawings should be uniform in size, number, mode of colouring, and mounting. If the Assessor advises that perspective drawings are desirable, it should be so stated.
5. Competitions should be conducted in one of the following ways :—
   - (*a*) By advertisement, inviting architects willing to compete for the intended work to send in designs. The Promoters, with the advice of the Assessor or Assessors, should make their selection from such designs. The author of the design awarded the first place should be employed to carry out the work.
   - (*b*) By advertisement, inviting architects willing to compete for the intended work to send in their names by a given day; with such other information as the candidate may think likely to advance his claim to be admitted to the Competition. From these names the Promoters, with the advice of the Assessor or Assessors, should select a limited number to compete, and each Competitor thus selected should receive a specified sum for the preparation of his design. The author of the design awarded the first place should be employed to carry out the work.
   - (*c*) By personal invitation to a limited number of selected architects, to join in a Competition for the intended work. Each Competitor should receive a specified sum for the preparation of his design. The author of the design awarded the first place should be employed to carry out the work.
6. No design should bear any motto, device, or distinguishing mark; but all designs should be numbered by the Promoters in order of receipt. Any attempt to influence the decision of the Promoters, or of the Assessor or Assessors, should disqualify a Competitor.
7. The author of the design placed first by the Assessor or Assessors should be employed to carry out the work, and he should be paid in accordance with the Schedule of Charges sanctioned and published by the Royal Institute. If no instructions are given to him to proceed within twelve months from the date of selection, or if the proposed works are abandoned by the Promoters, then the selected architect should receive payment for his services in connection with the preparation of the competition drawings of a sum equal to $1\frac{1}{4}$ per cent. on the amount of the estimated expenditure.
8. In every case the amount of premium or remuneration for the competitive designs, other than that placed first, should be fixed under the advice of the Assessor or Assessors.
9. Where a deposit is required for supplying the Instructions, it should be returned on the receipt of a *bona fide* design; or if the applicant declines to compete and returns the said Instructions, within a month

after the receipt of replies to Competitor's questions. The deposit required should not exceed the sum of one guinea.

10. Each design should be accompanied by a declaration, signed by the Competitor, stating that the design is his own personal work, and that the drawings have been prepared under his own supervision.
11. A design should be excluded from a Competition—
    (*a*) if sent in after the period named (accidents in transit excepted);
    (*b*) if it does not substantially give the accommodation asked for;
    (*c*) if it exceeds the limits of site as shown on the plan issued by the Promoters, the figured dimensions on which should be adhered to;
    (*d*) if the Assessor or Assessors should determine that its probable cost will exceed by 10 per cent. the outlay stated in the Instructions, or the estimate of the Competitor should no outlay be stated. If the Assessor or Assessors be of opinion that the outlay stated in the Instructions is inadequate, he or they shall not be bound in the selection of a design by the amount named in such Instructions, but the question of cost shall nevertheless be a material element in the consideration of the award;
    (*e*) if any of the other Instructions are violated.
12. It is desirable that all designs and reports submitted in a Competition, except any excluded under Clause ~~12~~ 11, should, with the consent of their authors, be publicly exhibited after the award has been made, which award should be published at the time of exhibition. At the close of the exhibition all the designs, ~~with the exception of the one placed first~~, should be returned, carriage paid, to their authors.
13. It is essential to the success of any Competition that the Promoters should agree in their Instructions that the award of the Assessor should be adhered to unless there is some valid objection to the employment of the author of the design placed first, as to which the Assessor should be satisfied.
14. Except in the case of works of ~~in~~considerable magnitude it is desirable that ~~two or more~~ 3 Assessors should be appointed. As stated above, the President of the Institute is always ready to advise on this or other points.

⁂ *The R.I.B.A. Scale of Charges for Assessing Competitions is at the minimum rate of Thirty Guineas plus ⅕ per cent. upon the estimated cost of the proposed building.*

The adoption of the revised Paper having been moved by the Chairman (Mr. H. T. Hare, *Vice-President*),

Mr. EDWIN T. HALL [*F.*] said there were one or two slight verbal alterations he should like to call attention to. In the *Note* to No. 2, last line but one, the word "those" ought to come out. In No. 7 he suggested that an addition should be made to the effect that if the architect was subsequently employed, then the 1¼ per cent. previously paid should merge in his commission. That had been put in in one or two recent competitions, and it was perfectly reasonable. The addition might read, "If the said author should be subsequently employed, the 1¼ per cent. previously paid to him should merge in his ultimate commission."

The CHAIRMAN: I have no doubt the Competitions Committee would accept that, because I think that is really their meaning and intention.

Mr. HALL: Then in No. 8 why should not the assessor fix the remuneration of the man who is placed first? Let the clause read: "In every case the amount of premium or remuneration for the competitive designs should be fixed under the advice of the assessor or assessors," leaving out the words "other than that placed first."

The CHAIRMAN: It is suggested that there should be no first premium.

Mr. HALL: But it is a very common practice to give an honorarium to everybody; and why should the man who is fortunate enough to be placed first not have the same remuneration as the others? It sometimes happens in a big competition that the first set of drawings is of no value because the promoters change their mind. There is no reason why, if there are six competitors, all the six should not have a fee, and that sufficiently remunerates the man for his design if it is done away with.

The CHAIRMAN: You suggest that the words "other than that placed first" should be omitted?

Mr. HALL: Certainly.

The CHAIRMAN: I think there is no harm in that.

Mr. HALL: Then there is a clerical error in the second line of No. 12; it should read "except any excluded under clause 11," instead of "clause 12." Then the last sentence of clause 12: "At the close of the exhibition all the designs, 'with the exception of the one placed first,' should be returned, carriage paid, to their authors." Why put in those words at all?—there is no advantage in it. The first man wants his drawings back to go on with the working drawings.

The CHAIRMAN: Quite so.

Mr. HALL: Then in No. 14: "Except in the case of works of inconsiderable magnitude, it is desirable that two or more assessors should be appointed." I venture to ask the reconsideration of that as a matter of principle. I think it would often be most embarrassing and most troublesome, and in certain cases impossible. Supposing it is a very large institution indeed—a very large hospital or a very large lunatic asylum—it would be very difficult indeed for two assessors to deal with such a thing. You might have three; but to have two I believe is a grave mistake. Personally I think that, given the right assessor, you cannot have better than one. Whether you always get the right assessor or not I cannot say. But I feel sure that you cannot get on with two. What is going to happen if they disagree? You would be without an assessor at all.

Mr. A. W. S. CROSS [*F.*]: It says "two or more."

Mr. HALL: Then may I suggest that two, at all events, is a mistake? If you press this upon the public, it means their paying two or three assessors instead of one. Now no one would be satisfied in any big work if they were not three eminent men; and if they are, how are you going to induce any big employer, committee, council, or corporation to pay three expensive fees to do one service? The effect will be that you will not get the assessor at all. In the interest of all of us I strongly urge that it should not be put as it is. It would be much better to leave the thing alone, and say "an assessor."

Mr. MAURICE B. ADAMS [*F.*]: I think Mr. Hall has rather overlooked this point, that there should not be an excessive fee paid to any one assessor at all. We ought rather to consider the position of an assessor as a very honourable one, and those who rank leaders of the profession should be willing to undertake the duty for a somewhat more moderate fee than has often hitherto been paid. Looking at it from that point of view, if the public were enabled to secure three assessors for a moderate fee, probably for a little more than they can at present secure the services of one man for, it would be very much better for everyone that there should be at least three assessors for undertakings of a certain magnitude. We all know by bitter experience that there have been occasions when the most lamentable results have followed the appointment of a single assessor, even where no question arose as to whether the assessor had done what he personally felt to be the right thing. All individuals are liable to act upon a preconceived idea of what is a good type of plan for the building in question, and so judge the plans from that particular point of view, at the same time failing to observe many other things that ought to be taken into consideration; whereas if the assessor had the advantage of a second and a third person to point out to him what he had overlooked, some of those disastrous results which have taken place, and will continue to take place, would be obviated. If we approach the subject from the point of view that it is an honour to be asked to assess, and that we should be willing to do so for a moderate fee, in the interest of everyone concerned, the public would soon fall in with such a scheme, and not only the public, but architects themselves, and, above all, good building would be benefited.

Mr. H. HARDWICKE LANGSTON [*A.*] called attention to some ambiguity in the wording of Clause 2. "The duty of Assessors should be, after conference with the promoters—(*a*) To draw up the particulars, conditions, and suggestions in accordance with the principles herein set forth as Instructions to Competitors." The "principles herein set forth," he pointed out, are not instructions to competitors. He thought the old wording was infinitely better, and he asked that it might be altered back again to what it was in the Kalendar.

It was ultimately agreed, on the proposal of Mr. HALL, to substitute for the words "in accordance with the principles herein set forth" the words "in accordance with these regulations," with a comma after.

Mr. GEORGE HUBBARD [*F.*], having called attention to the opening words of Clause 14, "Except in the case of works of inconsiderable magnitude," the SECRETARY explained that it was a slip, and that it was intended to read, "In the case of works of considerable magnitude."

Mr. HUBBARD: Then it strikes me that Mr. Hall's suggestion is a perfectly sound one. We shall not help matters forward very much if we have two assessors who might disagree. If it is acceptable to the Meeting, I would suggest that the word "three" should be substituted for "two." Then the clause will read, "In the case of works of considerable magnitude it is desirable that three assessors should be appointed." I do not think you want the words "or more."

Mr. LANGSTON: I will second that, Sir.

The CHAIRMAN: Would it meet the case if it read, "In the case of works of considerable magnitude it is desirable that more than one assessor should be appointed"?

Mr. HUBBARD: Then you might be brought again to the difficulty that Mr. Hall has raised.

The CHAIRMAN: The point is that promoters may hesitate to appoint so many.

Mr. LANGSTON: Not if the fee was reduced.

Mr. HALL: Might I say just one word on the question of fee, because it is important? You must not forget one thing, that an employer values your opinion at your own valuation of yourself. Take the case of a civil engineer who is appointed either as an arbitrator or as an assessor. He charges a much heavier fee than we ever think of charging. And he gets it. And his opinion is respected.

Mr. C. E. HUTCHINSON [*A.*]: The whole matter of the question of fees is clearly settled by the little note at the bottom which states "The R.I.B.A. Scale of Charges for Assessing Competitions is at the minimum rate of Thirty Guineas plus $\frac{1}{5}$ per cent. upon the estimated cost of the proposed building"—there is an end to the whole matter.

Mr. BRODIE [*F.*]: No, it is not an end of it. If you are going to ask people to pay three times that, you must state it in the clause, and I agree with Mr. Hall that you will not get it.

Mr. E. T. HALL: See what that means on a half-million job. The fee would be £1,000. No assessor I have ever heard of has got such a fee, and I am quite sure if you asked that you would not get an assessor appointed.

The CHAIRMAN: I think, Mr. Hall, you have imagined a very extreme case. If you take the scale suggested for any case up to, say, £150,000, which is as big a job as one usually gets, you will find it works out reasonably well; it would be £300. That would not be too heavy.

Mr. BRODIE: But even that would mean £900 if you appoint three assessors.

Mr. HUTCHINSON: The intention, I take it, was to divide the fee into three.

Mr. H. W. WILLS [*A.*]: And if three men were employed as assessors, presumably there would be less work for each than a single assessor would have.

Mr. HALL: If each assessor does his work honestly I think he will have quite as much to do. Otherwise there is no value in having three.

Mr. WILLS: Three men assessing a job would naturally work together, and the views of the two would have some weight with the third. It is like a sub-committee.

Mr. HALL: I only advise you not to kill the goose that lays the golden eggs.

Mr. HUBBARD: I cannot quite follow Mr. Hall's view. He tells us in one breath that you are taken at your own valuation—that if your fee is a high one you are respected. But now he says: If you ask a high fee you will not be employed. Surely it is a little incompatible.

Mr. HALL: The point is this, whether it is a £500,000 job or a £100 job it more or less takes you the same time to do. It is not a question of the value of the building.

Mr. HUBBARD: Surely the case would be satisfactorily settled by the suggestion that was made that the fee on those very large jobs, which would be paid in the ordinary way to one assessor, should be divided amongst the three. That surely meets the case, and it could be expressed in a note at the bottom.

Mr. G. A. T. MIDDLETON [*A.*]: So far as I see, it is expressed at the bottom; it is the scale for assessing a competition, not the scale for each assessor, whether one or three.

Mr. JOHN SLATER [*F.*]: I think very strongly that it is a most undesirable thing to attempt to lay down any scale of charges for assessing competitions. You may have one competition where there are a very large number of competitors for a £50,000 job which will take you a great deal longer than another competition for a £100,000 job. Every individual case must be assessed at its own value. I feel very strongly that any scale of charges for assessing competitions should be kept out of the document altogether, and I will move that the whole reference in the note to the Scale of Charges be omitted.

Mr. HALL: I will second that. But at the present time we are on the former point. I will move as regards the number of assessors that the words "two or more" be omitted.

Mr. DARBYSHIRE: I second that.

The CHAIRMAN: In that case you omit the clause entirely.

Mr. HALL: Yes, leaving in the last sentence as a sort of tag to the whole.

The CHAIRMAN: You do not really need that, because it is stated at the beginning of the document. The whole clause would go out.

Mr. HALL: Yes, Sir, I move the omission of Clause 14.

The motion was put to the Meeting and lost.

Mr. HUBBARD: Now, Sir, I move that the clause shall be altered as follows: "In the case of works of considerable magnitude, it is desirable that three Assessors should be appointed," and then it will continue as here. "As stated above, the President of the Institute is always ready to advise on this or other points."

The CHAIRMAN: Would it meet your views if it read thus: "In the case of works of considerable magnitude it may be desirable that more than one Assessor be appointed" ?

Mr. HUBBARD: No; then you might get the same confusion that we have here. It should be one or three. I think Mr. Hall's point is perfectly sound there.

Mr. HALL: I would urge that there should be grave consideration given to this, even if it is sent back to the Committee. Remember we are looking after our own interests, and all the voting here is in our interest. But we have to consider the public; and, if we put before them a burden too heavy for them to bear, it will be to the ruin of our interests. If you say to them, "Because this job is large you must appoint three Assessors," they will not appoint one; I believe that will be the effect. I come in contact with a number of these big bodies, and I know how difficult it is to persuade them. We have to consider the interests of the public in this matter, and unless we can justify ourselves in the face of the public we shall never get them to listen to us.

Mr. HUBBARD: But I am not suggesting any further burden upon the public. I think Mr. Middleton's interpretation of the note at the bottom is correct, that the charge for assessing a competition is a minimum rate of thirty guineas, plus ⅕ per cent. upon the estimated cost of the proposed building; whether you have one assessor or whether you have fifty, that is the charge for assessing; I therefore press forward my amendment.

Mr. WILLS: I beg to second it.

Mr. SLATER: I shall certainly move (whatever the amendment to this clause) the omission of any scale of charges, because I am perfectly certain it would work very hardly indeed upon members of this Institute, and everybody concerned with it.

Mr. CROSS: The public have a right naturally to know the charges that will be made for assessing competitions.

Mr. BERTRAM BULMER [*F.*] supported Mr. Slater's view. It was exceedingly desirable, he said, that the matter should be left open, so that promoters could make their own arrangement with assessors as regards charges. His opinion was partly founded upon an experience of his own during the past year, when a body promoting a competition applied to the Institute to appoint an assessor, and this assessor was requested to state his charges. It happened that those charges were on so high a scale that the promoters felt, as their building was to a certain extent a tentative matter, that they were unable to afford them. They then looked round for somebody else, and he (the speaker) was approached in the matter, and asked what his fee would be. He should mention that he was in absolute ignorance of the circumstances, except that he was asked what his fee would be. He mentioned a sum and assessed the work, and was well paid for it. When all was concluded, he was told, after expressing his satisfaction at the fee received, that it was exactly half the fee which had been asked by the assessor appointed by the Institute. That went to show that there were limits to the amount promoters were prepared to pay for assessorship. He thought that the arrangements Mr. Slater favoured were in conformity with the view expressed by the learned counsel Mr. Hudson in his remarks on the scale of charges, that elasticity in these matters is the principle to be adopted. Therefore he had much pleasure in supporting the view of Mr. Slater.

Mr. HUBBARD: Has the question of fees anything to do with this Clause 14?

Mr. SLATER: Mr. Hubbard distinctly said he should support Clause 14 as it stood with three assessors, because of the note at the bottom.

Mr. HUBBARD: No, I support Clause 14; but Mr. Hall says the public would not pay for three assessors, and that is why I brought in the note at the bottom.

Mr. SLATER: I shall move the omission of the note, at all events.

The CHAIRMAN: Will you give me the words of your amendment again, Mr. Hubbard?

Mr. HUBBARD: My amendment is: "In the case of works of considerable magnitude it is desirable that three assessors should be appointed," and then the rest will continue as printed.

Mr. MAURICE B. ADAMS said that even with the paragraph at the end of the clause it was always open to the President of the Institute to advise and to explain to promoters the exact position of affairs. He entirely disagreed with Mr. Hall's objection to three assessors. Experience had shown that it was absolutely necessary that there should be three assessors in important competitions, and he thought it would be a great pity to mix up the question of their payment for the moment with the principle which was involved in the appointment of three assessors. The question should stand or fall by its merits, and not be mixed up in any way with the question of payment. As to how the assessors were to be paid, that question would best be approached in the spirit he had just referred to. If in the ordinary way a single individual would have £300, then the work of assessing could be more efficiently done by three, each receiving £100. There was nothing small or petty about that. But the question of the three assessors should be threshed out on its own merits. The question of payment had far better be settled afterwards.

Mr. Hubbard's amendment was then put and carried.

Mr. SLATER: I beg now to move the omission of the note as to a scale of charges altogether.

Mr. HUTCHINSON: In the case of a very large job a commission of 30 guineas plus ⅕ per cent. would, of course, be out of all reason. But on an average small job that rate would not be at all unreasonable. The matter might be met by inserting the words "with the exception of works of very considerable magnitude" at the beginning of the note about the scale of charges. If that would meet the case, I should like to propose it.

Mr. SLATER: But that just shows how very difficult it is to lay down any scale at all. You have the three assessors; let the matter of charge be threshed out between the promoters and the President of the Institute.

Mr. MIDDLETON: I should like to second Mr. Slater's amendment, Sir; I believe he is right. I have known of cases of very small competitions where even this minimum would be a great deal too high.

Mr. Slater's amendment to omit the note was then put and carried.

Mr. HUTCHINSON: With regard to the second paragraph of Clause 1, "The President of the Royal Institute of British Architects is always prepared to act as honorary adviser to the promoters in their appointment of assessors," that is referred to again in the last clause, 14. I suggest that it would be advisable to say "The President and Council of the Royal Institute of British Architects."

Mr. CROSS: I beg to second that.

The CHAIRMAN: It would be an extremely difficult matter for the Council to advise promoters.

Mr. HUTCHINSON: It is important, because if you take Clause 5 there are several methods by which we suggest competitions may be carried on. There is also the question of the selection of assessors and many other points. I bring this forward because the general body of members are affected by competitions, and they feel that they would prefer to be represented by the whole body of the Council.

The CHAIRMAN: Anyone who has ever acted on the Council must realise how absolutely impossible such a thing would be to work. You never could get the Council to advise promoters. Must all the correspondence be brought before the Council and considered by them? It would be impossible to carry out.

Mr. HUTCHINSON: There has been one very important case decided quite recently which was brought before the Council, and, as I understand, a ballot was taken among the whole of the Council. That precedent is such a happy one that we ought to have it included in these regulations so that it should be permanent.

Mr. CROSS : I think the wording should be "The President after consultation with the Council."

The CHAIRMAN : As a matter of fact, the President always does take the Council into his confidence when there is any matter of importance like the one Mr. Hutchinson refers to where a ballot was taken. The President was asked in that case to nominate certain architects, and he did not take that responsibility upon himself, but asked the Council to ballot for them.

Mr. HUTCHINSON : I may say that if the words "and Council" are included, and there is any case brought formally before the Council, they still have the power, if they think fit, to appoint the President to act on their behalf and use his discretion.

Mr. HALL : Can a matter like this be brought forward without notice? It is a question of absolutely new practice which has never been considered in any case. I am quite as much interested as anyone; I am a competitor myself. But this is enunciating a new principle on which the President's opinion has not been taken.

The CHAIRMAN : For years it has been one of the prerogatives of the President to have this nomination in his hands; and it is rather upsetting what has become a precedent to suggest that it should be taken from him and put into the hands of the Council. It seems to me that the Institute, through its President, has got into a very important position. The President is regarded in his official position by promoters of competitions with a very considerable amount of confidence; and, if you put in anything of this sort about the Council, it will be very derogatory to the President in his official position, and tend to take away confidence from him.

The SECRETARY : May I say that in very many cases promoters ask the President of the Institute to appoint an assessor almost by return of post? Supposing he were asked to-morrow, the promoters could not be requested to wait a fortnight until the next Council Meeting. And what would happen in the recess? This is a practical matter I venture to bring before the Meeting.

Mr. LANGSTON : There cannot be conferred upon the President any prerogative except such as is given him by Charter, and it certainly is not in the by-laws that this power is to be vested solely in the President. It may have accrued to him through long custom; but that does not show that he has a right to it.

Mr. HUBBARD : From a public point of view, it is quite possible that the promoters might wish to have the individual opinion of the President, and not the opinion of the Council.

The CHAIRMAN : I think that is the case in many instances. But I would suggest, as a way out of the difficulty, that if this particular point were referred to the Competitions Committee to consider, it might avoid our coming to a hasty decision now which we might be sorry for. It has been once or twice suggested by members that it would be a good thing if a small sub-committee of the Council, say two or three members, were appointed as an advisory committee to assist the President when he has these selections to make. That Committee would be in existence, so that the President could confer with them privately if he wished. Such a proposition as that might very properly be sent forward to the Council by the Competitions Committee, and, if that were done, the matter could be thoroughly threshed out both by the Committee and the Council.

Mr. HUTCHINSON : I take it, Sir, that it would naturally follow, if this resolution were carried now, as I ask, that the Council would take some such means as the appointment of a small Committee so as to avoid calling special meetings for such a purpose. It is in their power to do so; and it is with the sole object of having the Council represented on these matters that I have brought the subject up.

The CHAIRMAN : My only point was that before it should be decided that such a course should be taken it should be thoroughly and carefully considered in the Competitions Committee. We have not a proper opportunity in a meeting like this, and at this late hour, to consider the matter thoroughly as we ought to do. If your resolution were adopted now it would go forward to the Council as a resolution of the general body in this room which could not be escaped from.

Mr. MIDDLETON : I would propose, Sir, that all the amendments put forward to-night should go back for consideration by the Competitions Committee, who probably will accept them all, except perhaps this one, which they will consider in detail.

Mr. HUBBARD : Having regard, Sir, to the very few members now present, I think it would be hardly fair to take a binding resolution upon such an important question. I think your suggestion that it should be referred back to the Competitions Committee is an extremely wise one. I therefore move, as an amendment to Mr. Hutchinson's motion, that the matter be referred back to the Competitions Committee.

Mr. LANGSTON : I second that.

Mr. CROSS : I support the original proposition of Mr. Hutchinson. I think it is simply shelving the matter to refer it back.

The CHAIRMAN : It is open to me to adjourn the meeting. I think, under all the circumstances, the best course will be to defer this question, together with Mr. Bonner's motion which is on the agenda, to the Business Meeting of the 5th June.

After some further discussion the proceedings closed, and the meeting stood adjourned to Monday, 5th June, upon Mr. Hubbard's amendment to Mr. Hutchinson's motion.

THE ANNUAL ELECTIONS.

New Nominations.

The following nominations of members to serve as Vice-Presidents and as Members of Council respectively for the ensuing year of office have been made by Fellows and Associates in accordance with By-law 30 :—

As Vice-Presidents.

Hall, Edwin Thomas : Nominated by Alexander Graham, Leonard Stokes, John Slater, Ernest George, Henry T. Hare, *Fellows* ; William A. Forsyth, R. S. Balfour, *Associates.* [Withdrawn from candidature as Member of Council.]

Taylor, Sir John, K.C.B. : Nominated by Ernest George, Sir Aston Webb, R.A., E. Ingress Bell, Alexander Graham, John W. Simpson, And. N. Prentice, *Fellows* ; Maxwell Ayrton, *Associate.*

As Members of Council.

Adams, Maurice Bingham : Nominated by G. F. Bodley, R.A., W. M. Fawcett, W. E. Riley, F. M. Simpson, Rowland Plumbe, E. M. Bruce Vaughan, Cole A. Adams, Philip Hy. Tree, E. Swinfen Harris, J. Edward K. Cutts, *Fellows* ; George Frampton, R.A., *Hon. Associate* ; F. M. Harvey, *Associate.*

Ayling, Robert Stephen: Nominated by C. E. Mallows, Alfred W. S. Cross, A. Burnell Burnell, Alexander C. Forrester, Arthur Ardron, *Fellows*; Arnold S. Tayler, Bruce Dawson, William C. Hulbert, *Associates*.

Baggallay, Frank: Nominated by John Slater, Alexander Graham, Sir Aston Webb, R.A., John W. Simpson, Ernest George, *Fellows*; R. S. Balfour, William A. Forsyth, *Associates*.

Bilson, John: Nominated by William A. Pite, Beresford Pite, Wm. H. Atkin Berry, Ernest George, Alexander Graham, John Slater, *Fellows*; William A. Forsyth, *Associate*.

Burnet, John James, A.R.S.A. (Glasgow): Nominated by John Slater, Alexander Graham, Ernest George, Wm. H. Atkin Berry, B. Ingelow, *Fellows*; R. S. Balfour, William A. Forsyth, Thomas A. Pole, *Associates*.

Caröe, William Douglas, M.A.Cantab., F.S.A.: Nominated by Alexander Graham, Ernest George, Sir Aston Webb, R.A., John W. Simpson, John Slater, *Fellows*; R. S. Balfour, William A. Forsyth, *Associates*.

Cross, Alfred William Stephens, M.A. Cantab.: Nominated by Butler Wilson, W. Gillbee Scott, Lewis Solomon, George Bertram Bulmer, S. Perkins Pick, James S. Gibson, George Hubbard, *Fellows*; C. E. Hutchinson, Horace T. Bonner, *Associates*. [Withdrawn from candidature as Vice-President.]

Davis, Herbert: Nominated by John W. Simpson, F. R. Farrow, Wm. Flockhart, Wm. H. Atkin Berry, J. Douglass Mathews, John Slater, Edmund Wimperis, *Fellows*. [Mr. Davis was nominated by the Council, but his name was inadvertently omitted from the House List.]

Gibbs, Edward Mitchel (Sheffield): Nominated, first, by Joseph Smith, W. J. Hale, Chas. B. Flockton, George Hubbard, *Fellows*; H. L. Paterson, Henry J. Potter, James R. Wigfull, *Associates*. Secondly, by Butler Wilson, George Hubbard, George Bertram Bulmer, Alfred W. S. Cross, *Fellows*; George Fox, Horace T. Bonner, C. E. Hutchinson, *Associates*.

Gotch, John Alfred, F.S.A.: Nominated by Alexander Graham, Ernest George, B. Ingelow, Wm. H. Atkin Berry, John Slater, *Fellows*; R. S. Balfour, William A. Forsyth, Thomas A. Pole, *Associates*.

Gruning, Edward Augustus: Nominated by Alexander Graham, John Slater, John W. Simpson, Sir Aston Webb, R.A., Ernest George, Wm. H. Atkin Berry, *Fellows*; R. S. Balfour, *Associate*.

Hubbard, George: Nominated by Butler Wilson, W. Gillbee Scott, Lewis Solomon, George Bertram Bulmer, S. Perkins Pick, James S. Gibson, Alfred W. S. Cross, *Fellows*; C. E. Hutchinson, Horace T. Bonner, *Associates*. [Withdrawn from candidature as Vice-President.]

Mountford, Edward William: Nominated by John Slater, Alexander Graham, B. Ingelow, Ernest George, Wm. H. Atkin Berry, *Fellows*; R. S. Balfour, William A. Forsyth, Thomas A. Pole, *Associates*.

Prentice, Andrew Noble: Nominated by John W. Simpson, John Slater, Wm. H. Atkin Berry, Alexander Graham, Ernest George, *Fellows*; William A. Forsyth, Thomas A. Pole, *Associates*.

Prynne, George Halford Fellowes: Nominated by Alexander Graham, Sir Aston Webb, R.A., Wm. H. Atkin Berry, John W. Simpson, B. Ingelow, John Slater, Ernest George, *Fellows*; R. S. Balfour, William A. Forsyth, *Associates*.

Townsend, Charles Harrison: Nominated by John Slater, Wm. H. Atkin Berry, Alexander Graham, Ernest George, *Fellows*; William A. Forsyth, R. S. Balfour, Thomas A. Pole, *Associates*.

Waterhouse, Paul, M.A.Oxon: Nominated by John W. Simpson, Alexander Graham, John Slater, Sir Aston Webb, R.A., Ernest George, *Fellows*; William A. Forsyth, R. S. Balfour, *Associates*.

As Associate Members of Council.

Forsyth, William Adam: Nominated by John Slater, B. Ingelow, Wm. H. Atkin Berry, Alexander Graham, Ernest George, *Fellows*; R. S. Balfour, Thomas A. Pole, *Associates*.

Pryce, Thomas Edward: Nominated by Ernest George, And. N. Prentice, Alexander Graham, John W. Simpson, Sir Aston Webb, R.A., John Slater, *Fellows*; Maxwell Ayrton, *Associate*.

Young, Ernest Alexander: Nominated by W. A. Longmore, A. Saxon Snell, Mark J. Lansdell, Walter J. Burrows, *Fellows*; A. Spottiswood Jones, Harold Griffiths, E. Godfrey Page, *Associates*.

Garden Design in Italy.

Mr. H. Inigo Triggs [*A.*], encouraged by the reception accorded his "Formal Gardens in England and Scotland," has now in preparation a work on similar lines dealing with "Formal Gardens in Italy." The work is to consist of an historical essay dealing with garden planning in Italy since the early days of the Roman Republic. The plans, drawings, and sketches, which are to form a principal feature of the work, will be supplemented by a series of reproductions of photographs specially taken by Mrs. Aubrey Le Blond. The illustrations will consist of plans; gate entrances and lodges; terraces, balustrades, and steps; seats, casinos, pavilions, summer-houses, &c.; fountains, ponds, cascades; well-heads; statuary and vases in lead and stone, &c.

Mr. Triggs has spent a considerable time in Italy collecting information for his work, and he writes that he will be grateful to members of the Institute who possess any plans or engravings, or who have made studies of the planning and arrangement of Italian villas and their garden architecture, if they would lend such studies or communicate with him. Probably among the Travelling Students of the Institute there may be some who have studied the subject. Mr. Triggs's address is 8 South Parade, Bedford Park, W.

Dinner to the President.

A complimentary dinner was given to the President on the 11th ult., at the Florence Restaurant, by his past and present assistants and pupils. The chair was taken by Mr. J. W. James, who was supported by Professors Beresford Pite and C. M. Reilly, and Messrs. J. J. Joass, A. Needham Wilson, P. M. Johnston, T. P. Figgis, H. G. Ibberson, H. C. Corlette, W. D. Belcher, A. H. Belcher, R. Lindsay, A. R. Hennell, M. Maberly Smith, E. A. Hill, Gilbert Robinson, T. H. Russell, J. R. Scott, A. L. Belcher, T. R. Chalmers, A. R. Conder, H. Anderson, A. F. Murray, L. Detmar, Val Meyer, H. Johnstone, F. J. W. Hart, A. Balfour Paul, H. Hopwood, A. C. Wallace, and A. George. The toast "Our Guest" was proposed by the Chairman, supported by Professor Pite, Mr. Joass, and Mr. P. M. Johnston. The speakers all accepted the occasion as an opportunity to express their appreciation of Mr. Belcher as an artist and of the great ability evident in his works; and also to show their esteem for him as a man whose influence and personality they valued so much. They also warmly congratulated him on his having been elected an A.R.A., and on his more recent honour in being made President of the Institute. Mr. Belcher, in his reply, acknowledged the pleasure it had given him to be present, and referred to the friendly relations which had always obtained between the members of his staff and himself.

The late Lord Grimthorpe.

Lord Grimthorpe, who has just passed away in his ninetieth year, was at one time an Hon. Associate of the Institute, and took a considerable interest in its affairs. Sir Edmund Beckett, as his style was prior to his elevation to the peerage, was among the first batch of Hon. Associates elected when that class was established in 1877. He resigned in 1884, presumably as a protest against the attitude taken up by the profession in regard to his work at St. Albans. The history of this famous controversy from Lord Grimthorpe's point of view is told in his *St. Albans Cathedral and its Restoration*, and again in his *Book on Building*. The cost of the restoration, amounting to between £130,000 and £140,000, he defrayed entirely himself. He was his own architect, and the custodians of the building allowed him a free hand. The *Standard* of the 1st May, in an interesting notice of Lord Grimthorpe, recalls an amusing story told in connection with the restoration of an old church near Malton. The plans were submitted to him, and seeing a sketch of two large buttresses on each side of the chancel, he drew his pen through them and wrote: "These must come out. I suppose the architect intends them to be Early English." As a matter of fact the buttresses were really there, and had been for centuries.

REGISTRATION OF ARCHITECTS.

68 *Aldersgate Street, London, E.C.: 2nd May* 1905.

To the Editor JOURNAL R.I.B.A.—

It has occurred to me that if members of the Institute were entitled to call themselves "chartered architects" it would prove a great benefit to them, and the public would soon learn that if they wanted a duly qualified man they could not do better than employ a "chartered architect." The accountants, as we all know, have derived considerable advantage by adopting this idea.

I should be glad to hear the opinion of other members on this point, and perhaps it is one that the Registration Committee of the Council will deem worthy of their consideration.

I am, Sir, yours faithfully,
PERCY B. TUBBS [*F.*].

GLASGOW INSTITUTE OF ARCHITECTS.

The thirty-seventh annual report of the Council of the Glasgow Institute states that in regard to the proposed reconstruction of the Royal Infirmary, Glasgow, a communication had been received from the Glasgow Archæological Society, intimating that they had appointed a committee to co-operate with the Glasgow Institute and kindred associations, with a view to opposing the adoption of any design which would result in permanent injury to the external effect of Glasgow Cathedral, and recommending the preparation of a drawing for publication, showing the Cathedral and reconstructed Infirmary side by side, so that the dwarfing effect of the latter might be realised by the public. A committee was thereupon appointed to deal with the matter, and with powers to obtain the drawing suggested. The Glasgow Art Club have also appointed a committee in connection with the matter. The joint-committee representing the three bodies mentioned have had several meetings, and, although no formal report has yet been submitted by it, it is understood that the drawings have been prepared, with the result that the apprehensions felt and expressed by the Glasgow Institute have been fully justified. A committee, the report states, is considering the question of the amalgamation of the Glasgow Architectural Association with the Glasgow Institute.

LEGAL.

London Building Act: Fees for Tenement Buildings.

MARSLAND *v.* FRAMPTON AND SHEFFIELD.

At Lambeth Police Court on 28th April, before Mr. Francis, Messrs. Frampton and Sheffield were summoned by Mr. Ellis Marsland, District Surveyor for the district of Camberwell, for the recovery of fees due in respect of twenty-eight houses erected by the defendants for the Camberwell Borough Council.

The houses were situated in Oglander Road and Oxenford Road. Two of the number were simple houses, but the remaining twenty-six were tenement buildings; each building measured under eight squares in area and two stories in height. The houses containing two tenements were constructed with one tenement on the ground floor, having an entrance door at the front, giving direct access to the tenement, and with a second tenement on the first floor, to which access is obtained by a separate entrance door and a staircase. The entrance doors to the two tenements were side by side, and were within a common porch recessed about three feet within the main front wall of the building and under one arch. There were also separate means of approach from each tenement to the yard in the rear, one by a doorway and the other by an iron staircase. It was not possible to pass from one tenement to the other without passing out of one entrance door into the common porch and in at the other entrance door, or by passing through the yard in the rear. The fee on these buildings, amounting to £3 10*s.* each, was assessed on the basis of "fee and a half," it being claimed that they came within the proviso to the 3rd Schedule, that in the case of buildings divided into separate sets of chambers or tenements by party structures the fee is to be increased by one half. For the defence it was contended that only a fee on the single scale was due.

Mr. W. C. Williams, who appeared for the District Surveyor, urged that the buildings came within the proviso to the schedule. The tenements had in fact "separate entrances from without," and the circumstance that the two entrances had a porch in common did not affect the issue, as each tenant could lock his own front door, and so keep his tenement to himself.

Mr. G. S. Roberts for the defence urged that a separate entrance from without must mean from without the building as a whole, and that existence of the recessed porch therefore precluded these tenements from coming within the proviso; there was no difference between a porch three feet deep and a passage fifty feet long or a staircase fifty feet high; there was only one staircase, not staircases in each building.

Mr. Francis asked whether it was contended that "these were not separate tenements," and referred to the case of blocks of flats as coming within the proviso; these usually had one common staircase from which the flats opened.

Mr. Roberts replied that they had no separate entrance from without, but only a common entrance, and that if the magistrate decided against him he would be deciding the case of blocks of flats as well.

Mr. Francis replied, "You are inviting me to say it is not from without because it is from within the lobby."

In giving his decision, Mr. Francis said that it was always interesting to have an argument of this sort, especially when the learned counsel who raised it admitted it was a highly technical one; but in his opinion the buildings came within the proviso, and the District Surveyor was therefore entitled to the extra half-fee. "Separate entrances from without" meant a separate entrance from without each individual tenement, not necessarily from without the building. There would be judgment for £95 5*s.* and £2 7*s.* costs.

MINUTES. XIII.

At the Seventy-first Annual General Meeting (being the Thirteenth General Meeting of the Session 1904-05) held Monday, 1st May 1905, at 8 p.m.—Present, Mr. Henry T. Hare, *Vice-President*, in the chair, 29 Fellows (including 13 members of the Council), 34 Associates (including 1 member of the Council), and 1 Hon. Associate: the Minutes of the Meeting held 17th April [p. 404] were taken as read and signed as correct.

The Hon. Secretary announced the decease of Hedley John Price, of Nottingham, *Associate*, elected 1884.

The following Associates attending for the first time since their election were formally admitted and signed the register—viz. Claude Batley and Percy Aspden Horrocks.

Reference was made to the death of Lord Grimthorpe, a past Hon. Associate of the Institute, and the Chairman stated that a note thereon would appear in the JOURNAL.

The Report of the Council for the official year 1904-05, which had been previously circulated among members in the United Kingdom, having been formally presented and taken as read, was moved for adoption by the Chairman. The Report was then discussed, and the Meeting finally

> RESOLVED, *nem. con.*, that the Report of the Council for the official year 1904-5 be approved and adopted.

A vote of thanks was passed to Messrs. Sydney Perks [*F.*] and H. A. Crouch [*A.*] for their services as Hon. Auditors of the year's accounts; and Messrs. Sydney Perks [*F.*] and W. A. Webb [*A.*] were nominated Hon. Auditors for the ensuing year of office.

The Meeting authorised the Council to appoint scrutineers to direct the election of the Officers, Council, and Standing Committees for the year of office 1905-06, and to report the result thereof to the Business General Meeting of the 5th June.

The existing Statutory Board of Examiners was reappointed, and Mr. William Grellier [*F.*] was added as a member of the Board.

The Meeting then proceeded to the discussion of the Institute Paper on the Conduct of Architectural Competitions as revised by the Competitions Committee,* its adoption being first moved by the Chairman. A few slight amendments † proposed by Mr. Edwin T. Hall [*F.*] were accepted by the Chairman, but a proposal by Mr. Hall to omit clause 14 was put to the Meeting and negatived. An amendment by Mr. George Hubbard [*F.*], F.S.A., seconded by Mr. H. W. Wills [*A.*] that the first part of clause 14 should read "In the case of works of considerable magnitude it is desirable that three assessors should be appointed" was put to the Meeting and carried. A motion by Mr. John Slater [*F.*] seconded by Mr. G. A. T. Middleton [*A.*] to omit altogether the note as to the R.I.B.A. Scale of Fees for assessing competitions was put to the Meeting and carried. A motion by Mr. C. E. Hutchinson [*A.*] seconded by Mr. A. W. S. Cross [*F.*] that the Council should be associated with the President in advising promoters in their appointment of assessors was discussed, and an amendment moved by Mr. George Hubbard, seconded by Mr. H. Hardwicke Langston [*A.*], that the matter be referred back to the Competitions Committee. The Chairman, having regard to the lateness of the hour, the few members present, and the importance of the question involved, declined to put either motion or amendment, and adjourned the discussion to the Business Meeting of the 5th June—the adjournment taking place upon Mr. Hubbard's amendment to Mr. Hutchinson's motion.

The proceedings closed, and the Meeting separated at 10.20 p.m.

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* The revised Paper as presented to the Meeting is set out at length on page 449.

† See discussion, page 450.

THE DEVELOPMENT OF ARCHITECTURAL ART FROM STRUCTURAL REQUIREMENTS AND NATURE OF MATERIALS.

[The Essay, submitted under the motto "Dil Aram," awarded the Royal Institute Silver Medal 1905.]

By Ethel Charles [*A.*].

VITRUVIUS in his chapter on the origin of buildings sums up in a few words the development of architectural art. He tells us that in ancient times men, like wild beasts, lived in forests, caves, and groves, where they made shelters under which they might lie, and by observing each other's work and turning their thoughts to discover something new they by degrees improved and made a better kind of habitation. Then when their minds were thus enlightened, and they became more judicious by experience, they no longer built huts but founded houses, with walls constructed of bricks, stones, or other materials; and, observing also that nature afforded a great variety of timber and other materials fit for building, they availed themselves of that advantage, and thus improving in the arts they extended them to increase the pleasures and elegancies of life.

Here we have all the historical facts marshalled in due order, and the whole development of architectural art traced in a few lines.

A structural requirement produced the first shelter for primitive man, and it is the variableness of structural requirement that creates modifications in architecture. No great development has taken place prompted purely by a desire to do something new. Architecture results, in the first instance, from necessity, and can progress only so long as new wants create new materials or new methods of handling existing materials. The one-storied brick hut of præ-dynastic Egypt is the tangible expression of a want satisfied. So is the thirty-two-storied steel skeleton block of present-day America. The difference in these two extremes is due to the difference in the requirements experienced by races divided by eighty centuries.

Then primitive man observed his neighbour, tried to improve on his methods, and so to make another and a better kind of habitation. Thus it is that architecture has advanced throughout the ages. Man, having studied past methods of construction, keeps those which answer his requirements and invents new methods to meet new necessities. These new methods of treatment revolutionise the art and form the basis of what is afterwards classified as a style. For example, the Roman and modern styles of building are alike in this, that the visible architecture is often only the covering of the constructional material beneath. In modern buildings the new material, steel, meets modern requirements, whereas in Rome solid concrete answered the purpose. How far convenience, common-sense, and cost justify the use of steel in connection with architecture is for the individual to decide.

Primitive man further extended the art by availing himself of the advantage offered by Nature in the great variety of material she provides. On looking back over eighty centuries we appreciate how dependent architecture is on material. It is not only a variety of materials that produces a variety of styles. The same material applied with a greater appreciation of its qualities will produce different forms which mark the progress of the art. Thus the varieties of material—granite, clay, marble, cement, stone, brick, and steel—have produced the Egyptian, Assyrian, Greek, Roman, Gothic, Renaissance and modern styles, while the difference between two consecutive stone styles, Romanesque and Gothic, is due to the fact that the Gothic builder appreciated the qualities of the material and made his stone work to the limit of its endurance, whereas the Romanesque builder only required his stone to do a fractional amount of the work of which it was capable.

Thus we see that although architecture is partly the work of tradition and imagination, it owes its chief developments to the requirements of succeeding ages and local necessities, and to the nature and peculiarities of material in given countries.

The term "structural requirement" is so comprehensive that it will be well to define here what is understood by it, and thus to sketch the lines on which the development of architectural art will be traced.

Architectural composition can be divided into four sections, and includes the arrangement of the plan, the construction of the walls, the roofing of the space enclosed, and the finish conferred by mouldings and ornament. Each of these sections is governed by some necessity, some requirement, and it is in fulfilling these requirements that architectural art develops itself.

Plan.—The plan is the suitable disposition of spaces. It varies not only with the different uses of buildings, but with the habits of the race during the period at which it was evolved. Thus the plan of the Roman Senate House consisted of a rectangular space, about 90 by 60 feet, surrounded by four walls, and supplying the needs of those times. The English Senate House, one of the most original architectural conceptions ancient or modern, stands on an area of 8 acres, and contains 500 rooms, devoted to nearly as many purposes. It illustrates how the question of plan is essentially the basis of modern architecture, because modern buildings are more intricate in their purpose and requirements than are ancient buildings. It is the structural requirement of the age which produced this development. The nature of material also affects the plan to an important extent and hampers the architect, till in self-defence he has to change his methods or introduce new materials. One of the chief aims in a plan is to make the voids as large and the solids as small as possible; or, in other words, to obtain the largest available floor space consistent with stability; and the proportion between these two areas varies with the material employed. The Egyptian mud brick required walls of such a thickness that the solid exceeded the void space. The use of dressed stone turned the balance in favour of the voids, which in Milan Cathedral bear the proportion of 10 to 1; and the use of steel in modern buildings has infinitely increased this proportion.

Wall.—The construction of the walls is merely the projecting upwards of the plan, and is governed by the same necessities as dictated the plan. When population is scanty and land abundant, as in many country districts, one-storied houses, built of rubble, fulfil the requirement. But when land is valued at 60*l.* the square foot, as in New York, and 1,700 persons must be provided with office room on an area of 8,000 square feet, then the wall construction must change, and such methods be adopted as will allow of the walls to tower 300 feet in the air. In ancient trabeated construction the openings in a wall, except of small dimensions, were a source of weakness, for stone lintels are liable to fracture under a transverse strain; but in modern constructions, where much light is required to penetrate the wall, the steel girder, fifteen times as strong as the stone lintel, does away with the element of danger and supplies a structural requirement.

Roof.—The roofing of spaces again develops with the need of the builder. Trabeated construction in stone or wood could only satisfy requirements so long as the spaces to be roofed over were small. Vast halls, like Roman baths and palaces, necessitated the adoption of vaults whose spans were practically limitless. Subsequently, in comparatively small buildings, the wooden roof was rejected in favour of the vault, whose more durable material lessened the danger from fire. Here, again, do we see how structural requirement and nature of material caused the development of the roof.

Ornament.—Mouldings and ornament would hardly seem to result from a structural necessity, but that man is never long satisfied with the mere beauty of fitness and utility. The æsthetic portion of his nature demands a finish which is not necessarily utilitarian. But in good art this finish is so incorporated with construction that it is hard to separate the two. The construction of roofs, gutters, openings, and supports, affords opportunities for decoration, and hence we may say that the ornament belonging to any particular development of architecture is also the result of structural requirement.

How much the treatment is influenced by the nature of the material is to be seen by comparing the rare, stiff mouldings, the slight incisions, of Egyptian granite with the numerous full curves and round modelling of Gothic stone, or with the exuberant, fussy productions of easily moulded terra-cotta.

The development of architecture, depending therefore on new wants and fresh material, may be traced through five great groups of building, each distinguished by its own method of construction.

1. Egyptian, Western Asiatic and Greek, with trabeated construction.
2. Roman, with cast construction.
3. Byzantine, Romanesque, and Gothic, with arcuated construction.
4. Renaissance, with arch and lintel construction.
5. Modern, with steel trabeated construction.

EGYPT.

It appears strange that although architecture is such a personal art, and arose in the first instance merely from a desire for shelter, the oldest surviving examples which are to be found in Egypt were not erected as habitations for man. Egyptian architecture shows less than any other the characteristics of structural requirements and the influence of material. Its scope was extremely limited, and the one quality it aimed at was endurance. It was mainly influenced by another powerful factor which affects fine arts, the religious polity of the people.

Tombs and temples precede secular buildings. The primitive material, mud and wattle, is considered sufficient for the huts of the living long after stone sepulchres are being provided for the dead; and these same stupendous sepulchres, though they hardly come within any of the accepted definitions of architecture, rank among the noblest monuments this art has handed down.

Art, as the gratification of an artificial taste and standard, was at that time scarcely in existence. The primitive Egyptian had no precedent to work on, nothing but nature from which to draw inspiration—a nature consisting of bare expanses of flat sand with occasional hillocks to break the monotony. But these hillocks were a source of inspiration, and the builder set himself to supplement, to imitate, to rival the works of nature. He did not regard his work as a building up of brick or stone. He ignored the capabilities of his material and recognised only one requirement, solidity and stability from mass; and he only indirectly acknowledged this by a desire to rival nature in the erection of masses. He imitated in so far as he worked on the same lines as nature, and it is owing to this highest and most difficult kind of imitation that the Pyramids are included among monuments of architecture.

Thus a building was an artificial hill in which chambers were constructed after it had been piled together. A mere hollow was left where the chamber was to be found eventually, and then it was dressed down and sculptured as if it were in the heart of the live rock. Mass was the first feature made use of, and being the easiest way of imposing beholders shows the efforts of a rude nation striving to produce effect. Even when the Egyptian adopted megalithism for his religious monuments he adhered to his soft-brick methods. The tumulus of brick had been of large dimensions to ensure resistance to time and weather, and the granite tumulus should be as large.

We said Egyptian architecture was restricted in scope. It has handed down two important groups of buildings—tombs and temples—both of which exhibit the same characteristics.

Plan.—The plan of a pyramid was elementary, consisting of a chamber and passages within a square mass of walling. Simplicity was likewise the chief feature in the plan of the temple. It was merely a hall or a collection of halls leading one out of the other, without any accessories or adjuncts. It typifies the condition of a simple people.

Wall.—The construction of the walls is characterised by stability and durability. They were built for eternity, and leave an impression of simplicity and grandeur.

Roof.—The roof, being composed of slabs of stone, materially restricted the conception of the plan. For as soon as the interval between the supports exceeds the dimensions of the stones it is subdivided by a row of pillars carrying stone beams on which rests the ceiling.

Ornament.—Just as in the construction the nature of the material did not palpably affect the method of building, so in the decoration we find that wood transmitted its forms to stone. The granite column resembles a bundle of reeds; the granite cornice takes the form of the bending papyrus grass. The chief principle of the decoration is the most powerful one architecture possesses, and being the simplest is characteristic of a simple, primitive people: this method is repetition and symmetry. We find everywhere rows of columns, avenues of sphinxes, processions of statues, all in the same position, and a limited number of conventional types painted or carved in stiff bands.

The resisting nature of the material is certainly accountable for the few hard mouldings that occur and for the slight incision of carved ornament. This enforced absence of mouldings and projecting features left the wall surface plain for the quantity of colour decoration applied by the Egyptian. The granite of the walls and ceilings was plastered and painted in a free, vigorous style which shows the Egyptian to have been no less a draughtsman than a colourist. The earliest ornament is merely a zigzag line found 4000 B.C. Gradually delicate flowing conventional ornament was introduced, and later representations of flowers, fruit, animals, and the human figure occur, introduced as symbols.

Wall surfaces were also covered with tiles, either modelled or painted in brilliant colours. A rough sort of mosaic was also used consisting of a ground of white limestone or earthenware incrusted with brilliantly coloured bits of glass.

The Egyptian just used the means he had at hand. He sought neither inspiration nor material in foreign countries, and has by simple methods produced an architecture which in its massive construction and symbolical decoration records the mental needs of his age.

WESTERN ASIA.

The extensive ruins of mighty cities attest to the high degree of prosperity and civilisation reached in early times by the inhabitants of Western Asia. The character both of Chaldean and Assyrian architecture is the same. It consists of a system of construction resting on the use of clay. In Chaldea this is the result of necessity, whereas in Assyria it is the result of tradition.

In the fertile plain of Chaldea the want of stone was acutely felt. The only building material was clay, which was turned into the more convenient medium, brick. "Go to," said the builders of Babel, "let us make brick, and burn them throughly. And they had brick for stone, and slime had they for mortar." Had it been possible to "burn them throughly," these bricks would have lasted longer, and walls would not have been reduced to their present shapeless masses. But wood was rare and fuel costly, so that the builders had to content themselves for the most part with sun-dried bricks, using the kiln-dried brick as a skin or covering.

Centuries later, when the empire was transferred from the mother country to its offshoot Assyria, the Assyrian architects proved such servile pupils of the old masters of Chaldea that they never willingly used stone, although their acquaintance with the foreign art of Tyre, Memphis, and Thebes must have shown them the advantage of this material. The Assyrian argued that the plans of his ancestor were good enough for him, and so was the material—with the result that the art made no sensible advance, and Assyrian architecture is merely a reproduction, partially in stone, of Chaldean brick structures.

In Egypt it is the tomb, the habitation of the dead, that is built for eternity in stone and granite, while the habitation of the living is built of less durable material. In Western Asia the requirements of the living are of greater importance, and the palace is the chief building. We find no monumental hypogea, for no mountains of stone existed soft enough to allow of galleries being hewn, or hard enough to prevent chambers once hewn from crumbling. The tomb like the palace is built of brick, but not so solidly, and consequently it has crumbled more.

Because brick is used as the constructional material, and sculptured stone as an outer covering, Assyrian architecture is accused of externalism and unreality. This criticism is hardly fair, for the Assyrian was hampered in many ways. Tradition is a far more powerful factor in the East than the West. Out there "Custom hangs with a weight heavy as frost and deep almost as life," and to alter ancient methods would have been an act of impiety. Again, although stone was procurable, it had to be brought from a distance, and required skilled labour for its handling, whereas the local material, clay, could be worked by slave labour. Therefore the Assyrian used clay, and for the most part had to content himself with sun-dried bricks. The only effect one could hope to produce by such a mean material was an effect of mass. The palace, the important building of the town, was raised on a hillock of brickwork, so that the foot of its walls stands far above the surrounding roofs. This elevated position both typified the superiority of the sovereign over his subjects and ensured his safety when the city had fallen into the hands of the enemy.

Plan.—In the plan we see a distinct advance on Egyptian work. The spaces are not strung together like independent buildings; they are grouped according to the purposes they serve. The public halls are easy of access; the women's apartments difficult of approach, the offices suitably disposed. The whole arrangement shows an anticipation of human needs and a regard for creature comfort as then understood.

Wall.—In construction the palace was nothing but a great compact block of earth containing a series of small covered-in rooms, large uncovered halls, and courtyards for supplying light. The walls were of immense thickness, which served the double purpose of keeping both heat and enemies at a distance. The next step in the building was as much constructive as decorative. The friable edges of the brick exposed to the atmosphere and to rough usage, required to be protected in some way, so the clay walls were coated with enamelled tiles and with slabs of stone of such tremendous size—12 feet square—that this alone would betray that they are a veneer and not an integral part of the building. On the external walls there is not a feature that might be called a moulding. No cornice, no projection. But the crowning ornament, a crenellation of baked bricks, was derived essentially from the method of brick building. A series of little piers forming a festoon, so to say, against the sky would be the natural termination to a building consisting of such small materials.

Roof.—The roof was most important, conferring a special character on the building and showing a great development on the Egyptian manner of roofing. Vaults entered into the composition alike of great and small buildings. The one-storied house, without window or feature to break the monotony of the wall, was protected by a terraced roof surmounted by a conical dome. The primitive dome was not a vault construction. It was built on the corbelling-out system, which has the advantage of not requiring wood centering. Hence the dome is the usual type of Eastern vaulting, and was derived from a structural requirement and from the absence of a material, wood.

Ornament.—It may seem strange that no mouldings should be found in a clay country, where the material offers such facilities to the modeller. One reason has already been adduced—the builders would not incur the needless expense of baking purely ornamental features. Another reason for their non-existence is the absence of a *raison d'être*. The object of moulding a surface is to increase the expression of an architectural feature and to bring it into prominence. But an Assyrian building had practically no features; that is, it did not express externally its internal arrangements. The external wall was an unbroken solid mass, 20 feet thick, giving no sign of voids, sources of weakness within. Even on the internal walls no traces remain of window openings, which probably did not exist. Doorways there necessarily were; but these were of narrow limits, and made as unobtrusive as possible, being regarded in the light of barriers, not of entrances.

Although mouldings were absent, there was plenty of ornament, all structurally useful. Externally and internally in important places, such as gateways and royal apartments, the wall was protected to a considerable height by sculptured slabs of stone. Externally enamelled bricks, highly coloured, faced exposed surfaces, while internally the clay core was shielded by bas-reliefs in plaster painted in bright colours. Decorative motives were necessarily few at such an early period, but such as they were—rosette, guilloche, and honeysuckle—they have survived to the present day.

It is not to be wondered at that colour rather than form attracted the Assyrian. Colour is the easier to appreciate, and the Assyrian for all his comparative civilisation was a cruel barbarian at heart, and richly deserved that Nineveh and the rest of his land should be made "a desolation," as foretold by the prophet Zephaniah.

ETRURIA.

Etruscan work may be considered the connecting link between the architecture of the East and of the West. Very little of this art survives, and what there is shows more force than beauty, more vigour than grace, as is illustrated by the enormous piles of uncemented masonry which for three thousand years have withstood the ravages of time and man.

The little that remains, however, shows the debt that Western architecture owes to Etruria. The introduction of the arch into the system of building is the most prolific development ever accomplished in architecture, and it is to Etruria that Europe owes the arch.

It is improbable that the Etruscan discovered for himself the principle of the arch, for, although highly skilled in practice and technique, he was not original. The Phœnicians probably introduced into Etruria from Assyria the system of vaulting by corbels, and, considering the acknowledged skill and practical turn of the Etruscan, it seems likely that he worked out for himself the principle of cuneiform sustentation. The earliest perfect arched construction extant is the Cloaca Maxima, built in the sixth century B.C.; and its perfection leads one to suppose long previous acquaintance with this mode of construction.

Etruscan architecture is a curious mixture of Eastern and Western ideas. While Egypt and Greece clung to the lintel, Etruria adopted the Eastern arch. The origin of the Etruscan nation remains an enigma. Seneca says, "Asia claims the Etruscans as her own," and the strongest evidence seems to point to a Lydian origin. It is thanks to the Oriental custom of representing the abodes of the living in the receptacles of the dead that we can form an idea of what Etruscan temples and houses were like.

Plan.—In the earliest period of building these constructions were circular on plan—the natural form suggested by the material used, wattle. After the sixth century B.C. a change of material necessitated a change of plan.

Wall.—Wood replaced the frail wattle, and plans were made rectangular; for with the advance made in carpentry it was seen that of all plans the circular is the least adapted to a wooden construction. Vitruvius corroborates the supposition that temples were likewise only built of wood, for he represents the intercolumniations as so much wider than those of the Greeks that the epistylia must have been of wood.

Roof.—From the evidence of the tombs we gather that ceilings were built up of beams and rafters, and from the same source we learn that both inside and out the walls glowed with colour.

Again, we must look for that great development of Etruscan architecture, the arch, in the tombs, where we see that this form of building was forced on the Etruscan from his structural requirements and the nature of his material. The object of the Etruscan was to conceal his tomb, and consequently the leading feature of sepulchres is that they are subterranean. They are either hollowed out of the living rock, or, where no cliff is available, they are constructed of masonry and heaped over with earth. In this latter form the roofing would suggest a problem. The Etruscan had no granite, like the Egyptian, which he could throw lintel-wise from support to support, and so carry the superincumbent tumulus. The local stone, tufa, of volcanic origin, was not compact or strong enough to bear a transverse strain. But the facility of working it would naturally suggest small blocks which would build up the arch and stand the necessary compression.

And so it came to pass that a change of method revolutionised the art of building—that art in which no change takes place and endures that is not occasioned by necessity.

Greece.

Although all Greek monuments are of trabeated construction, this form, involving great restrictions and limitations, was not forced on the Greek by ignorance of other methods. Traces of arched construction remain, dating from the most remote period of Greek history. In the monuments of Acarnania can be followed the successive stages by which the arch was reached. We find the jambs of a gateway corbelled out till they meet above in a rough sort of arch; then acutely pointed openings formed by two inclined slabs of stone, supporting each other; then a door-head, composed of two cantilevers with a semicircular piece cut away where the stones butt; and lastly we find the turned arch with radiating voussoirs and keystone complete.

Not only were openings in walls built on the arched system: entire monuments, such as the Treasury of Atreus, dating from the tenth century B.C., were of domical construction, although built with corbels. Thus we see that it was only the strong preference for a rectilineal architecture which relegated arched construction to the background and admitted of its practice only in structures of utilitarian purpose.

In the same way the Greek understood perfectly the handling of crude brick as a building material, but as a rule he ignored it in his monumental constructions. Vitruvius in his chapter on "the sorts of walls used by the Greeks" certainly enumerates some important buildings constructed of brick, including a temple and a palace at Tralles. "Even the mausoleum of the most potent king of Halicarnassus, in which, though the ornaments were all of Proconnesian marble, the walls were built of bricks, which remain to this time exceedingly substantial. . . . Nor was it to avoid expense that the king used bricks . . . but it was the result of his judgment and knowledge in building."

Hence we see that these restrictions of form and material were self-imposed by the Greek, and no doubt brought about such rare perfection in his art, just as submission to the severest rules in harmony has led to the highest inspirations of great composers.

The theory advanced by Vitruvius, that Greek art had its origin in a wood construction, appears to be borne out by facts, in spite of Hübsch's endeavours to prove that a stone construction was the basis of the style. It is true that as the art advanced it grew lighter and more graceful, and consequently approached towards, rather than receded from, wood proportions. It is also true that a style created by a material does not long survive its disuse, and the Greek stone style has survived twenty-six centuries. But so much in the early Doric order is unjustifiable from a stonecutter's point of view that the forms must be a survival of older methods of construction. For example, at Agrigentum, the great columns are embedded in the wall, and the carrying member, the architrave, is itself carried by the partition wall. At Pæstum the joints of the cornice fall at random, often in the middle of a mutule; the metopes and triglyphs, instead of being placed independently in position, are often carved out of the same block, and instead of being a single stone in height they are built up of two courses of masonry. Altogether this meaningless subdivision into metopes and triglyphs shows that the Doric frieze is manifestly a type which has survived its functions. The Greek was quick to recognise this, and, in his practical way of renouncing tradition when a better method suggested itself in the Ionic order, he reduced the frieze to a continuous band dividing two moulded surfaces. The fact that the Doric and Ionic orders were used contemporaneously shows that they were independent developments from a common stock. The sturdy proportions of the Doric order recall the large scantlings obtainable from the forests of Thrace, and the slighter proportions of the Ionic order recall the frail constructions of Ionia, where wood is scarce.

Although Greek architecture thus evidently originated from a wooden construction, the

Greek was far too reasonable to let the qualities of another material permanently influence and prejudice his design for stone. After a period of groping for the right method his architecture resulted from reasoned construction.

Plan.—Problems were approached in a frank, simple way, and plans were provided which had about them none of the mystery of the Egyptian pyramid, nor the precaution of the Asiatic palace. The plan of the typical Greek building the temple, symbolical of Greek devotion and superstition, is developed on strict lines of necessity governed by the possibilities inherent in stone. The cella contains one feature, a doorway. A natural advance emphasises this doorway by a portico. Love for symmetry added a portico at the rear. Then followed the obvious connection of the porticoes by a colonnade, which, being roofed over, supplied shelter and shade for worshippers. A double peristyle to a large temple not only added to the importance of its appearance, but provided shelter for increased numbers. The peristyle having originated from a structural necessity, its appearance was governed by the nature of the material, the columns being of such a size and spaced at such intervals as the nature of the stone employed permitted.

Wall.—The chief characteristic of Greek architecture is the simplicity, not only of plan, but of construction. The early Greek temple was a crude brick cella fronted by a portico of wooden columns. To prevent the damp from rising in the soft brick, the wall was raised on a high stone plinth, and this feature survives in the latest stone and marble constructions in the form of a course of masonry much deeper than the remaining courses in the wall. All brick and stone temples were plastered with fine cement made of pounded marble, which formed a hard skin and prevented injury from the atmosphere; at the same time it provided a suitable ground on which the painter could lay his colour decoration.

From the fifth century B.C. marble itself became the building material, and henceforward construction and art are one. The structural requirements supply the outward form and constitute the style. Every member is apparent and assumes the form most suited to the function which it fulfils. The important support, the column, springs erect and straight from the ground: it was left to future ages to contort and twist the shaft into the semblance of a corkscrew. In the Greek column the idea of resistance to a vertical pressure is emphasised by numerous vertical channels, so that instead of seeing only the two boundary lines of the shaft the eye sees a number of vertical lines running up to support the architrave, and is satisfied that the column is equal to its load. These flutes further fulfil the æsthetic object of cutting up the surface into ridges which catch the light, and channels which fill with shadow. Every feature and every moulding is designed with the same regard for fitness and beauty, from the base of the Ionic column rounded so as not to present obstructing angles, up to the cornice channelled for the carriage and discharge of water. Refinement in details is carried to such an extent that every vertical member is inclined, every horizontal member deflected, in order to correct optical delusions, and thus reality is sacrificed to obtain the appearance of reality.

Roof.—The roof was constructed of wood framing covered with marble tiles. Since the horizontal line was the predominating feature of the design, the roof was inclined at the lowest pitch at which the tile would throw off water. It influenced the plan to this extent, that if the cella were of such a width as could not be spanned by a single beam, one or two rows of columns were introduced into the plan for the purpose of supporting the beams where they butted. The extremities of the roof terminated in stone pediments—a Greek invention which, simple as it may seem, developed centuries later into the magnificent high-pitch gables of the Gothic period.

Ornament.—Greek ornament is so involved in the construction that it is hard to consider it apart. It is now an accepted fact that a large quantity of colour decoration was used on the many plain surfaces of the Doric order. But paint is perishable; and when once the ornament, an inherent part of the design, is destroyed, the effect aimed at by the Greek is destroyed also. It occurred to him to perpetuate his detail by using the chisel instead of the brush; and so, although the ornament of the Doric order has mostly disappeared, the later Ionic and Corinthian orders have handed down through the centuries their matchless decoration.

The nature of the fine, compact, white marble, together with the brilliant sunlight which shows up the least modelling, is responsible for the very delicate curves of Greek mouldings. And this same beautiful material, unrivalled for a sculptor's work, would naturally tempt the Greek lover of form to introduce as much figure sculpture as possible into the design of a building.

So few remains exist, other than those of temples, that but little is known of the civil architecture of Greece. As far as one can judge from propylea, basilica, and public monument, civil structures all resembled temples outwardly. The only authority recognised by the Greek at the period of the greatest expansion of art was the authority of the gods. Since religious polity was pre-eminent, and swayed the tendency of architecture, we cannot wonder that the civil buildings all took upon themselves the characteristics proper to, and the outcome of, the structural requirements of temple architecture.

Rome.

Vitruvius in his definition of architecture states that it consists of ordination, disposition, eurythmy, decor, and distribution. Distribution, he goes on to say, consists in the proper dispensation and application of the materials, and in adapting the building to the convenience of the owner and to its destination.

Of all ancient styles the Roman illustrates most aptly this definition of the great Roman architect. But little was conceded to tradition or to appearance. The development of Roman architecture was occasioned by the local requirements and by the nature of local materials. For this reason it should perhaps be spoken of in the plural, for it presents different aspects and methods according to the land in which we find it. Roman architecture does not signify a single art, any more than the Roman Empire signified a single nation. We have in it a collection of architectures on which the central authority impresses a common tendency, but which each keeps its local characteristics. Rome, being the centre of political sway, was also the centre of the chief development in art, and it is there that we will consider it.

The scanty remains of regal and republican times, rendered thus scanty by frequent fires and wholesale rebuilding under the emperors, show that the early Romans had no art of their own. The sixth-century city wall of Servius Tullius and the traces of early republican temples and houses on the Palatine are Etruscan in their use of rectangular tufa blocks, raised in alternate courses of headers and stretchers, and in the construction of their arched doorways. The ruling classes in early Rome were Etruscan, and they naturally adhered to their own manner of building. Thus in temples with a peristyle the columns are so widely spaced that the lintels must have been of wood, and Vitruvius mentions that their pediments were "adorned with statues of terra-cotta in the Etruscan fashion."

Then in late republican and early imperial times Rome looked to Greece for artistic inspiration. The impulse was given by the Roman conquests in the third century B.C. of Magna Græcia, Sicily, and Corinth. That this taste was a passing fashion and not innate is illustrated by the well-known story told of the consul Lucius Mummius.

Genuine Roman architecture dates from imperial times, when the utilitarian spirit of the nation led naturally and easily to the development of this new style, which is great without effort, stupendous without exaggeration.

It would be a nice question to determine whether the supply of a new material, concrete, created the demand for new requirements in structures, or whether the necessity for such structures suggested the use of concrete. Concrete was certainly known for centuries before it became the leading building material, but the Roman was slow to appreciate its value. It is amusing to note the extreme caution with which it is first used and the reckless daring of its later application. For instance, in prehistoric times thick beds of it formed floors only on the ground level; in imperial times a 14-inch floor would span a bearing of 20 feet without any intermediate support—a feat even more daring than the 80 feet vaulted spans of larger buildings.

On the whole one might be tempted to say that the material had a larger share than the structural requirements in developing the style, for most of the buildings on which concrete was used, *i.e.* palaces, theatres, baths, temples, and basilicas, existed in Greek days. But in Greece no palace towered like the Septizonium of Severus, 210 feet in the air; no theatre approached in area the five acres of Titus' amphitheatre; no stadium accommodated the 485,000 spectators of the Circus Maximus; no bath was ceiled like Diocletian's at a height of 140 feet; no temple was spanned by a lintel 142 feet long. And all this was made possible in Rome through the presence of pozzolana volcanic earth, which mixed with lime forms a cement of extreme strength, and has contributed more than any other material to make Rome the "Eternal City."

The Romans were not driven to the use of concrete because of the want of other material. They had on the spot stone of every quality, from soft tufa, worked in the prehistoric period with bronze tools, to the hardest travertine, a pure carbonate of lime. An intermediate quality, peperino, was largely used, being a volcanic stone of great durability and invaluable in its powers of resisting fire. Sand and gravel abounded, of excellent quality for the manufacture of mortar, and clay for the making of bricks. Yet all these materials were ignored in the constructional parts of a building, and were used merely as a facing to the concrete core.

The reason of this is apparent. The first condition in a Roman design was that it should be capable of being executed by unskilled labour, and concrete being easily worked fulfilled this requirement. The state of ancient Roman society imposed this condition. Towards the end of the republic only two classes existed on Latin territory, officials and slaves. The former were occupied with matters of state and war, and the majority of the slaves were untrained in the art of building. Therefore the Roman architect adopted a form of construction which was within the reach of unskilled workmen.

Roman architecture is often described as the result of arcuated construction. However, its main characteristic is not the development of the principle of the arch, but the extensive and skilful use of concrete. The arch is a method of sustaining material over voids by a system of mutual compression. But the Roman arch in the majority of cases is not exposed to compression. It is cast in a solid mass, and exerts no lateral thrust; wherefore it only bears the form, not the nature, of an arch, which, according to the Hindoo saying, "never sleeps."

The development of Roman architecture is, then, the history of concrete. At first this was used timidly on the ground floor as a filling-in between the solid masonry below the walls and columns of the Roman-Greek temple. Then from the first century B.C. it became the chief material for independent walls, and its aggregate is often an indication of the period to which it belongs. Thus broken lumps of tufa were used up to the time of Julius Cæsar;

under the empire broken brick and travertine were used as well as tufa and peperino, while in later imperial restorations great quantities of fire-stained marble are found as well as other materials.

The material with which concrete is faced is another indication of its age. Why facing should ever have been used is a matter of debate, for, whether this consisted of the rough opus incertum of the first century B.C., the neat opus reticulatum of the first and second centuries A.D., the exquisite brickwork of the first, second, and third centuries, or the opus mixtum of later times, it was none of it meant to be seen, and was quite unnecessary as a protection to the core.

Though the Roman was satisfied with a rough material for all practical purposes of building, his love of pomp and display demanded an appearance which this material by its nature could not supply. Concrete construction does not lend itself to artistic expression, and hence the concrete body had to be encased on the exterior with stone, marble, or stucco; on the interior with marble panelling, mosaic, or painting. For this reason Roman architecture is accused of being deceptive, and is compared unfavourably with its Greek model; for in Greek work form is construction, whereas in Roman work form hides construction. But it should be borne in mind that magnitude determines the use to which a material should be put; and whereas in buildings of limited dimensions, like those of the Greeks, we should expect marble to be used throughout the structure, in the vast constructions of the Romans it is a foregone conclusion that the decoration is only a veneer. Where common-sense excludes delusion, there can be no question of fraud.

The more closely we examine Roman buildings, the more clearly do we perceive that their architecture was the product of necessity and imagination. Necessity taught the Roman to meet new requirements, imagination led him to adopt a new material, and to adapt the old materials and methods of construction to suit the nature of concrete.

Temple.—Augustus records in the Ancyrean inscription: "During my sixth consulship I restored eighty-two temples to the gods," and he built others. Although from this statement and from existing remains we see that temples were very numerous in Rome, of all the different groups of buildings they are perhaps the least characteristic of Roman architecture. The Roman borrowed his temple, like his religion, from Greece, and found them well suited to his requirements. However, with time important changes were made which were the result of structural necessity and the nature of the material.

Plan.—Roman temples were not only dwellings for deities, they were used as museums of sculpture and as picture galleries. Consequently we see that on plan the tendency was to increase the size of the cella, either by making the temple wider in proportion to its length than a Greek temple would have been, as in the temple of Castor and Pollux, or by sacrificing the peristyle and building a large cella with prostyle portico and engaged columns along its walls, as in the temple of Fortuna Virilis. From the secondary use to which these buildings were put, we see that the modern designs for museum and picture gallery on the lines of a heathen temple have good precedent to work on, and are not such acts of incongruity as critics are wont to imply.

Wall.—For the same reason that more floor space was required, more light was necessary, *i.e.* to show up the art treasures. Greek temples were dark, being lighted artificially or from the roof. Roman temples have large windows inserted in their walls, which were filled in with bronze screens or with pierced and glazed marble slabs. But even when in style and detail the design was almost pure Greek, as in the temple of Castor and Pollux, the Roman did not hesitate to introduce a foreign constructional peculiarity. He was always timid in the use of lintels, and in this temple we find the frieze, instead of being in long lengths, is built up to form a series of arches which throw the weight of the cornice and roof directly on to the columns.

Roof.—It was again the presence of art treasures that caused a change in the manner of roofing temples. Wooden ceilings were a source of danger in Rome, where fires were frequent, and it was important to make the museums fireproof. Hence we find instances of concrete vaults thrown from wall to wall, enriched with deep sunk coffers decorated with stucco mouldings and rosettes, all richly gilt and painted. The vaults over the two apses of the temple of Venus and Rome, dating from Hadrian, are some of the finest examples existing of the kind. The greatest of all vaulted temples is the vast domed Pantheon, also of Hadrian, which, with its diameter of over 142 feet and its one great top-light, constitutes one of the stateliest of existing buildings.

Ornament.—In architectural detail we see Roman work at its worst. At first the Roman was content to make accurate copies of Greek mouldings and enrichments. But the sections of mouldings were soon modified from delicate hand-drawn curves to coarse compass-drawn rounds and hollows, and the craving for richness of effect finally led to an elaborate surface ornament which overran every available space, and by its excessive use dragged art down to the lowest depths of degradation. The use of a rough-grained stone like travertine was partly the cause of the coarsening of ornament, and the broader treatment required by the stone spread unconsciously to marble.

House.—Vitruvius when treating of houses gives a striking example how Roman architecture was developed from structural requirement and the nature of material. He says: " Brick (*i.e.* sun-dried) cannot be used by Romans within the city. The law permits no walls which are built in public places to be of greater thickness than one foot and a half; but brick one and a half feet thick cannot sustain more than one story, yet . . . the multitude of citizens requiring innumerable habitations, and as the area of the city cannot contain so great a number as inhabit it, to remedy the deficiency the height of buildings is increased. To this end, the walls are raised with hewn stone, testaceous substances or rubble, and built many stories high."

Thus we see how the Building Act of Augustus, by limiting the thickness of supporting walls, caused the crude brick and wood of republican times to disappear, and provided for more durable and safer habitations. The harder nature of stone and concrete allowed of the buildings being carried up to a greater height and provided more accommodation in an over-populated district. Indeed, the height seems at times to have been excessive, for we find Trajan passing a law that no house in a street should exceed 60 feet in height.

Plan.—To judge from the Greek names of the different apartments in a Roman private house, it appears the plan of the dwelling as well as that of the temple was taken from Greece.

Wall.—But whereas in a Greek house the windows all looked out on to an enclosed court-yard, one gathers from a fourth-century mosaic found in Algeria that the Roman dwelling resembled a modern palazzo. That is, the ground floor had a few openings heavily grated, and the principal rooms on the first floor were lighted with numerous arched windows. The walls were built of concrete faced with brick, never of brick alone. So general was the exclusion of brick as a constructional medium that even partition walls, seven inches thick, were cast in concrete and faced both sides with bricks; an operation that must have entailed much labour.

Roof.—From the evidence of oft-repeated fires it seems natural to conclude that the roofs of most buildings in Rome were of timber. In the few examples that remain of the upper stories of houses we find traces of the travertine corbels that carried the wooden ceilings ; also remains of concrete ceilings either vaulted or flat, spanning the room like a great slab of stone.

Ornament.—The decorations were richer than the austere Greek would have tolerated in a private dwelling. Concrete being wholly inimical to artistic expression, but presenting large flat areas suitable for mosaic work, we find this medium largely used. In the houses of wealthy Romans the pavements were remarkable for the intricacy of their designs in mosaic, executed in varieties of coloured marbles imported from every part of the Empire. The walls were covered with elaborate mosaics of pictorial style, executed with minute tesseræ of brilliantly coloured paste or glass. The vaults were also decorated with glass mosaic. Or wall and vault were covered with stucco, which formed an excellent field for painting in fresco, tempera, varnish pigments, or encaustic. Another usual way of decorating walls was to line them with marble, or, where expense was considered, a fine hard stucco was made of pounded marble, whose surface was highly polished and divided up with sunk lines to imitate marble blocks.

Theatres.—The Roman Forum was in early times the chief public resort. It was here that wooden theatres, temporary erections, were first set up. As time went on and population increased, the limits of the Forum became too small for all the business transacted there. Consequently the theatre had to be moved to a roomier site. Still the stern republic was so fearful of introducing Greek luxury that it prohibited a stone construction. It was not till the close of the republic that the hideous accidents resulting from erections of shaky platforms and seats and the increasing demand for accommodation led to the building of permanent theatres. The first stone one built by Pompey was opened 55 B.C. : it seated 40,000 people, and was still in use in the sixth century.

Plan.—On plan the Roman theatre was simply a copy of the Greek theatre modified in the proportion of the stage. Vitruvius describes the differences minutely, and closes his instructions with the wholesome advice to consult convenience when other things interfere with the symmetry.

Wall.—The main difference between the Greek theatre and the Roman was in the construction. The Greek usually selected a hill side in which he excavated the tiers of seats. The Roman built on level ground and made the necessary slope with raking vaults of concrete. Thus we see that material and method of construction made the Roman independent of site and natural advantages.

Amphitheatres.—The Greek theatre was designed for literary entertainment only. The first stone Roman theatre was baptized with blood, and its opening celebrated with a butchery of wild beasts. The mimic sorrows and artificial tragedies of the Greek stage were too tame for the brutal Roman. He must witness pain in agonising reality and death in all its horror before he can be moved. Although for singing and dramatic representations the performers must face the audience, this is not necessary in combats among men and beasts. The theatre plan excluded one half of the possible number of spectators, and hence the oval plan or amphitheatre was adopted for these shows. The amphitheatre is a purely Roman invention, and arose from the unhealthy craving for stimulating excitement.

Plan.—That the amphitheatre was the outcome of doubling the theatre is shown by Pliny's description of an astonishing building dating from 50 B.C. Two large wooden theatres were built on pivots, back to back, so that on occasions they could be swung round and form an amphitheatre. Since these erections accommodated twice as many spectators as a theatre, the accidents that occurred through the breaking down of these temporary wooden structures were on a terrific scale. Tacitus mentions one in the first years of the first century in which the number of victims amounted to 50,000.

Wall.—Therefore the builders of the Colosseum, when they were required to seat 87,000 spectators, were driven by necessity to use stable materials, viz. stone and concrete. The method of construction, tiers of vaulted intersecting passages, connected by numerous staircases, provided the rapid means of dispersal which makes this building such a masterpiece of planning.

Thermæ.—This institution and its customs were of Greek origin, as is betrayed by the fact that the different apartments had Greek names according to the use to which they were put.

Plan.—The Roman emperors, however, so amplified and improved the plan of the thermæ that the list of rooms given by Vitruvius as finding place in a Greek bath is not sufficient to account for all the apartments in the imperial buildings. Whereas the Greek bath was built in connection with the Palestra, and was part of a scheme, the Roman bath itself was the scheme, which included many adjuncts. Architecturally these thermæ formed by far the largest and most magnificent of all the public buildings in Rome. Bulwer Lytton describes them thus: "Imagine every entertainment for mind and body; enumerate all the gymnastic games our fathers invented; repeat all the books Italy and Greece have produced; suppose places for all these games, admirers for all these works; add to this baths of the vastest size, the most complicated combination; intersperse the whole with gardens, with theatres, with porticoes, with schools; suppose in one word a city of the gods, composed but of palaces and public edifices, and you may form some faint idea of the glories of the great baths of Rome."

Wall.—These glories are chiefly due to the use of concrete. No other buildings exemplify the possibilities of this material to the same extent as do the thermæ. In them we see the most daring feats of construction, the most complete mastery over material. In gazing on these giant ruins we regret neither the marble, the mosaic, the painting, nor the sculpture that once formed their decoration. Imposing as this must have been, the real distinction of the design lay in the grandeur of its conception and the stateliness of its mass, and this still remains. The walls tower an immense height in the air, and bear vaults spacious as they are light. It is in the tepidarium of Diocletian's Baths that we find one of the most impressive interiors in the world—a vast hall, 200 feet long, spanned by a giant vault, 80 feet wide, divided into three bays and carried on eight points of support. It is in the laconicum of the Baths of Caracalla, an immense circular hall 116 feet in diameter, that but for earthquakes we should find a dome almost rivalling that of the Pantheon itself.

Roof.—These vaults were the result of necessity in apartments exposed to steam and hot air. The wood of the ceilings soon became injured, and before the introduction of vaults the most elaborate system of ceiling was resorted to. Vitruvius describes how tiles two feet square were suspended on iron hooks fixed to the floor above, and how these tiles were made impervious to damp by being coated with cement made of powdered white marble.

Circus.—The Roman circus is again the adaptation of the Greek stadium; but whereas the stadium was used for foot races, the circus was meant for chariot racing, and was therefore on a larger scale. The history of the development of the circus is the same as that of all other Roman buildings, *i.e.* caused by necessity, as witnessed by the evolution of the Circus Maximus, the first and the largest circus in Rome. The valley between the Palatine and the Aventine was drained and fitted with wooden seats by Tarquinius Priscus, 605 B.C. The frequently recurring fires and demands for more accommodation resulted in a building which in the first century could seat 485,000 persons, and with its marbles, mosaics, statues, and bronzes must have been the most magnificent building in the world. A few feet of the concrete substructures of the seats is all that remains of this magnificence. *Sic transit gloria mundi!*

Tombs.—The two methods of interment, inhumation and cremation, were practised simultaneously in Rome, and we consequently find two large classes of sepulchres—tombs and columbaria.

As a rule wealthy citizens were buried. The sarcophagus was deposited in an underground chamber, and the spot was marked by a small monument. Both monument and chamber were ornamented with marble and paintings on stucco.

The columbarium was the repository usually of the ashes of freedmen and slaves. It was a practical way of providing for the dead in a limited space, and was more generally used round Rome than elsewhere, because of the value of ground in the immediate neighbourhood of the city. One of the largest of the columbaria contained the ashes of 6,000 freedmen of Livia, together with those of their families. The columbarium, which was usually underground, was vaulted in concrete, and its sides were lined with the same material to keep out the damp. Dryness was necessary, because mosaics, stucco reliefs, and paintings were lavished on the interiors of these buildings. As the chambers were rarely seen, and then only by dim lamplight, their decoration refutes the charge so commonly brought against the Romans, *i.e.* that they built only for ostentation. Modern columbaria differ in many points from their Roman predecessors. They are built chiefly above ground; they are flooded with light, and are almost devoid of decoration; these modifications are all due to the practical and commercial requirements of modern people.

Basilica.—The Greek basilica furnished the name for the Roman building in which assemblies took place, but the resemblance between the prototype and the typical Roman development ceases at the name. Early basilicas are in such a ruinous condition that it is difficult to reconstruct them in imagination. Vitruvius advises that "basilicas should be adjoined to the Forum on the warmest side, that the merchants may confer together without being incommoded by the weather." From this it may be inferred that the basilica answered the purpose of an exchange, and that it was an open portico consisting of supports carrying a roof similar to modern covered-in market places. The great Julian Basilica was presumably of this type; but some privacy was secured there by low screens being built between the piers, and by curtains being hung in the archways, which could be drawn at pleasure. The need of privacy led ultimately to walls being built round the portico. Vitruvius in the description of the basilica he designed at Fanum implies that such walls, "parietes," were built; a wooden roof with coved ceiling, "testudinatum," was thrown across the "media porticus," while the enclosing passage had a lean-to roof.

Plan.—Thus on plan there was a wide central nave, with aisles on either side and an enclosed space at either end. Greek writers speak of the Roman basilica serving further as courts of law. The basilica at Fanum was connected with the temple of Augustus, used also as a hall of justice; therefore it was an easy transition to dispense justice in the basilica itself. The enclosed space at one end served as a porch in which those persons could wait who were interested in the verdict; the space at the opposite end was raised above the general floor level and reserved as a tribune for the magistrates. As the merchants were apt to interrupt judicial proceedings by their clamour, the next step was to build out a semicircular tribune cut off from the rest of the hall by low screens. Thus we have the fully developed basilica, with vestibule or narthex, porticoes or nave and aisles, raised tribune or choir, and hemicycle or sanctuary.

Wall.—No peculiar method was developed systematically in the construction of the basilica. The earliest one, built 184 B.C., and the largest of all, built by Trajan nearly 300 years later, were alike in having lintels resting on the columns of the portico; whereas in the Basilica Julia of intermediate date the columns were replaced by piers and pilasters, between which arches were turned. Again, in the latest basilica, built by Constantine, columns were replaced by walls of solid concrete, which from their less valuable material have fortunately been allowed to remain partially *in situ*.

Roof.—It is doubtful whether all basilicas were covered buildings. Some, at any rate, were roofed from a very early period, as is proved by an old coin in the British Museum, which shows that the Basilica Æmilia of Lepidus, built 179 B.C., consisted of an open peristyle carrying a sloping roof. Trajan's enormous basilica, with a central nave 87 feet wide, is said to have been spanned by gigantic roof timbers brought from Lebanon, and some authorities hint that these timbers were removed to roof the Christian basilica of St. Paul's-without-the-Walls. The nave of the Basilica Constantine in the Forum was practically of the same height and width as that of Trajan's basilica, but the use of magnificent intersecting vaults in three compartments did away with the necessity of numerous points of support, and a considerable amount of space was thereby gained on the floor level.

Ornament.—In the columnar basilicas the chief decoration was derived from their constructional features. The columns of the peristyle, which were of precious marbles or of polished granite, produced, especially when the aisles were double, a very rich effect. Marble columns attached to concrete piers, bronze screens, stucco modelled, gilt and painted, gilt bronze tiles and statues, all contributed to the fame of these magnificent Roman structures, the last of which—the Basilica Constantine—is peculiarly characteristic of an architecture that results from the structural requirements of the people and from the nature of the available material.

BYZANTINE.

Roman art received a check and advanced no further, just when it was about to throw off the pretence of copying Greek forms, and so to complete its development.

In the fourth century artistic effort was suppressed by the influx of barbarians into Western Europe and by the removal of the seat of the Empire to Byzantium, a city founded by the Greek colonists a thousand years before. During this period Greek builders had perfected a style of building based on a rational marble construction. When the coming of Constantine brought new requirements, this keen, sympathetic race quickly assimilated new ideas, and by the discretional use of local material and the consideration of fresh conditions they opened up a new method of constructive art.

In all great styles it is in the ecclesiastical buildings that we trace the first germs of a new development. The fourth-century pagan buildings of Rome were characterised by a lavish use of degraded ornament. The Christian churches, in order to establish a contrast, suppressed architectural forms and built on strictly utilitarian lines.

When this principle was carried to the East by the Romans, the Greek builders interpreted it in their own way, and instinctively revived the art of decoration. Not indeed by recalling obsolete features, but by modifying their own ornament to suit new conditions. In a hundred years the development was completed. Morris says of its greatest example, St. Sophia: "The style leaps into sudden completeness in this most lovely building." This perfection was so rapidly attained because of the essential characteristics of the work, which are directness and economy of labour, both in construction and in decoration.

Choisy defines Byzantine art as the result of the Greek spirit working on Asiatic elements. Byzantium was in constant commercial touch with Persia, so that side by side with Greek influence we find traces of a Persian origin.

Roof.—The most important feature in a Byzantine building is the domical roof of Persia. In Rome the domical form had been used, but it was a cast dome, exerting no lateral pressure, and it had never been directly applied to a square plan. In New Rome the problem was worked out of surmounting the Christian basilica with a constructed dome, which required neither the mass of material nor the amount of labour put into the ancient concrete construction. In the construction of the brick dome lay the keynote of Byzantine architecture. The builders aimed at a system that would suppress all preparatory work; that would enable them to build without centres, and so to construct their domes in sections, after the Eastern manner. The problem was solved by the introduction of the dome on pendentives, which is light in material, though it exercises a slight outward pressure. This thrust is met by smaller domes, and in this system of equipoise we find the germs of the Gothic principle of meeting thrust with counter-thrust.

Plan.—Mediæval Greek differed from Classic Greek architecture in that as the style developed the roof and not the wall became the important feature. The plan was entirely ruled by the dome. Throughout the buildings of the fifth century we can trace in a series of churches, arranged chronologically by Mr. Lethaby, how the dome piers grew in importance, supplanting the nave columns of the basilica without, however, placing the circle of the dome in a distinct relation to the three aisles. In the sixth-century church of St. Sergius at Bozra the dome stands over a central octagon contained in an external square, and in the perfected plan of St. Sophia the union is complete.

The plan of this building is merely the fulfilment of conditions imposed by the dome. This is buttressed by surrounding vaults, so that the thrust is distributed over the whole area of the building. Paul the Silentiary thus describes this pyramid of domes: "Thus rises on high the deep-bosomed vault, borne above triple voids below . . . and, above all, rises into the immeasurable air the great helmet, which, bending over like the radiant heavens, embraces the church."

Wall.—The leading idea in Byzantine construction, says Choisy, is the independence of masonry unequally charged. Consequently we find external walls composed, as in late Gothic times, of piers and screens; only in Byzantine work these meet with a straight joint. The straight joint was expedient for a twofold reason. First, a building constructed of independent walls would suffer less from earthquakes, against which provision had to be made in the East. Secondly, since stone was used in those portions of the building subjected to great compression, and brick in other positions, settlement would not take place equally, and bonding between the materials of different sizes would have resulted in cracks and failures.

Another fundamental principle of the Byzantine style is the true use of the round arch and the frank use of brick, whereas the Roman had been at pains to mask his arches and to hide his construction. Though the whole of the internal brickwork of St. Sophia is overlaid with marble, there is no attempt made to simulate a marble construction. When the brick body had been completed and allowed to settle, the marble dress was applied. Marble frames and screens were inserted in the window openings; the marble jambs and lintels of doorways mitred where they met and proclaimed their non-constructional functions; the walls were lined with great slabs of inlaid marble, placed on end and frankly used as a veneer. Marble pavements and mosaic vaults completed the decoration, which, says Mr. Lethaby, with all "this utmost splendour is quiet and soft in its result."

Ornament.—The structural necessities of the dome settled the plan of the building, but the flat treatment, characteristic of Byzantine work, is the result of the decorative scheme, which excluded unnecessary architectural features, but made extensive use of marbles and mosaic. The column and the arch were necessary features, but by the suppression of the fragment of entablature, so characteristic of Roman work and so irrational a survival, the Byzantine builder succeeded in bringing these two features into a happy union. The arch thus bore firmly on the abacus, and the connection was completed by the invention of a capital which from the square of the abacus gradually approached the circular form of the shaft.

The ornament enriching the capital, as indeed all Byzantine carving, was incised only, so that the original shape of the block is not lost. This insistence on the nature of the stone is the most characteristic feature of Byzantine carving. It is an additional proof of the rational development of a style which, from the universal principles on which it is based, was to influence architectural art from the Black Sea to the Atlantic, from the Mediterranean to the Baltic.

Romanesque.

The great development known as the Romanesque style did not appear till the year 1000 A.D., but its root is to be found in Byzantine or Early Christian art. When the Germans, who may lay claim to have invented the style, swept down on Italy in the fourth century, they checked the natural evolution of art in Rome, and impressed on it a new and healthier character. And yet Roman power was so traditional that these northern people thought they could do no better than try to copy Roman monuments. In the sixth century Ravenna, besides being the acknowledged capital of the Western Empire, became the seat of the Byzantine exarchs, and gained in importance both in politics and in art. From this time onward artistic works yielded to Byzantine influences, but only a few examples have survived to show the source of Romanesque inspiration.

In the mausoleums of Galla Placidia and Theodoric and in the churches of St. Apollinare Nuovo and St. Vitale, Ravenna possesses almost the only examples on Italian soil of fifth and sixth century buildings, all Byzantine in character. After this, art stood still, while the struggles of Ostrogoths and Longobards, added to disease and famine, devastated the land, so that but few buildings are preserved between 600 and 1000 A.D. In the eighth century Charlemagne, indeed, wished to restore the Roman Empire and to bring about the Renaissance, which came of itself in the fifteenth century. But Teutonic and Eastern elements were too numerous, and on the opposite principles a style was eventually developed which reached a rare perfection, and was the expression of the Teutonic contribution to Gallo-Roman races.

Little remains in Germany to represent Early Christian art in the north. The chief monument is Charlemagne's minster at Aachen, built 804, which is, without exception, the most important building of its class in Europe. Its plan and decoration were unmistakably suggested by St. Vitale, Ravenna, though some of the forms used betray the clumsy local work of its period. From analogy and historical evidence we seem justified in assuming that almost all churches of this date were circular, but that after the eleventh century the circular form was discarded, as it offered no facility for the accommodation of numbers. Hence this radical change was effected in the plan by yielding to a structural requirement.

In France, where Charlemagne introduced modern arts from the East, there was a continuous development in architecture, which was fostered in the monastic establishments. In Europe at this period there were only two powers, the military and the religious. Since the spiritual always prevails over the lay power, the monasteries became richer and more important than the castles, and were the chief agents in spreading civilisation. Until the eleventh century the monks took the lead in teaching, in the practice of agriculture and handicrafts, in the study of arts and sciences. Within the monastery wall were grouped church, school, infirmary, hostel, and granary, as is all set forth in the plan of St. Gall, dating from 802 A.D. The plan of the church in this instance is of the basilican type, which shows that Roman as well as Byzantine influence was alive. But even at this early period ritual requirement had introduced a modification into the plan of the basilica by the addition of a second choir.

Although monastic architecture alone is found up to the twelfth century, the religious orders were too busy with their work of reform from the ninth to the eleventh centuries to found vast monasteries. It was only when they had partially succeeded in suppressing barbarism that they could turn their attention to building suitable, well-planned establishments, and that the Romanesque style was developed.

The feudal system reacted on monastic architecture and divided it up into as many units as there were orders. Each order had its own style of building, recognisable at a glance. The Benedictines were usually satisfied with the basilican plan for their churches, though they sometimes added a crown of chapels at the east end. They were lavish in the use of sculpture and ornament, owing to the soft nature of the stone they used. The strict Cistercians, who were founded as a protest against Benedictine luxury, planned abrupt, square-ended choirs. The building depended for its effect on the rugged Burgundian stone, for St. Bernard had prohibited figure and animal sculpture. The Carthusians affected so severe a treatment in their buildings that these can hardly be accounted architecture.

From 1000 A.D. we have types in different lands, showing separate schools. Northern and Central Italy form one school, Germany forms a second, while France has nearly as many schools as provinces. The difference in each case is accounted for by local requirements, local tradition, and local material. The chief development in the style consists in the perfecting of arched construction and in putting materials to a new use.

The Romanesque builder treated his material differently from the Roman. Roman mortar was used only as a cement. In Romanesque times it was used to transmit pressures. As soon as its purpose was altered, the concrete core and brick facing were done away with, and dressed stone came into general use.

Just as the dome dictated the plan of the Byzantine church, so the attempt to dispense with inflammable wooden roofs and to vault only with stone accounts for the variations of plan in Romanesque churches.

Plan.—Two plans had been handed down to mediæval builders, the three or five aisled basilica of Early Christian times and the circular plan. The latter had been early abandoned for reasons already stated. There remained only the basilican plan to be adapted to three separate needs: first, the parish church, which provides for a moderate congregation; second, the monastic church, which provides for a lay as well as for a monastic community; and third, the cathedral church, which provides for the episcopal functions of bishop and chapter.

The basilican plan has this disadvantage, that the nave piers have to be very massive in order to support the nave wall and the vault above. In Germany we generally find these piers much slighter than in France, for the German builder only vaulted where he had a counterpoise, and consequently threw wooden roofs over his naves. In order to lighten his piers still further, and to increase the accommodation, he evolved that peculiarly German building, the Hall Church, in which there are no nave walls; but nave and aisles, being of equal width and height, are roofed by three vaults of equal span. Poitiers Cathedral is an early example of this inartistic interior, which is seen at its best in Vienna in the Gothic church of St. Stephen.

Nave.—The spans were never great, rarely exceeding 30 feet, for the builders feared dislocation owing to the thrust of the arch. Consequently the width of nave and aisles was correspondingly limited.

Transept.—The addition of transepts to the plan seems to have been a Romanesque device for increasing the floor space, for transepts were not usual in Early Christian times. The crossing of the nave and arms would suggest a central tower, and the staircase to the transept roof would suggest staircase turrets, all these being features arising from the necessary development of the plan.

Choir.—The development of the choir was equally the result of structural requirements. The Early Romanesque choir ended internally and externally in a circular apse. At St. Hilaire, Poitiers, the apse itself is surrounded by semicircular chapels alternating with windows. On plan the chapel walls were soon made polygonal owing to the difficulties arising from working window arches and sills in the round. These chapels in the Gothic period gradually increased in number and clustered round the apse, divided from each other only by the thickness of a buttress. They were peculiarly necessary in cathedrals to enable the large staff of clergy to say Mass without undue delay. A passage was necessary to enable the public to reach these chapels; and this, though rare in Germany, is common in all French Romanesque churches of importance. Thus out of the simple circular apse, different necessities created the Gothic choir, with its processional ambulatory and chevet of chapels.

Vault.—The object the mediæval builder ever had in view was to design a vault which should combine stability with lightness. The numerous forms these vaults assumed are due to the local influences at work. In Germany there was no constructional progress. The earliest nave vault is found in the monastic church of Laach, and dates only from 1112. The characteristic feature in German roofs is rather a multiplication of small circular or octagonal towers, combined with polygonal domes. In England we have the barrel vault taught us by the Norman builders. It is in France that we find the greatest variety, and the steps that led eventually to the solution of the problem. At Le Puy, in Auvergne, we find the eastern dome on squinches. At Fontevrault Abbey, in Aquitaine, four Persian cupolas roof the nave. At St. Front, Périgueux, and in its neighbourhood we find Byzantine domes on pendentives. In the extreme south there are barrel vaults. At St. Philibert, Tournus, the difficulty of thrust is met by turning a barrel vault over each bay of the nave, the vaults of the aisles receiving the thrust of the transverse arch. The effect is ugly but interesting. At Carcassonne three tunnel vaults run the length of the nave and aisles; but neither is this satisfactory owing to the difficulty of lighting the nave. In the north the barrel vault was replaced by the Syrian groined vault with ribs of masonry, and the vault problem was nearly solved. The difficulty of making the keystones of transverse and wall rib of equal height led to the introduction of another Syrian feature: the pointed arch, which carried the vaults, concentrated their weight on isolated points of support and originated the style of construction now called Gothic.

Ornament.—Colour was largely used as a decoration by all the schools of Romanesque architecture, and where local materials offered a variety in colours the builders took advantage of this. For example, in Auvergne black lava, white chalk, and red brick are used as contrasts in actual construction. The want of tools is responsible for the poorness of the sculpture, for only that kind of carving could be executed that required primitive instruments. The ornament in those districts where Roman tradition survived is a corruption of Classical detail. In Germany, Normandy, and Poitou it is Byzantine, and consists of profuse surface decoration, composed of scales, geometrical combinations, and interlacings, copied from the tapis sarrazinois used as vestments and altar-pieces.

Gothic.

In construction and detail alike all through Romanesque work we trace the influence of tradition, which acted as a clog and prevented the builders from fully realising their aim. Tradition is useful up to a certain point, but in building it should be used as a stepping-stone, not as a corner-stone. Now experiment is the principle of Gothic architecture, and after the twelfth century we find a home-born art growing up in France. The new principle of experiment superseded existing principles and radically changed the architecture.

The material used by Romanesque and Gothic builders was the same, viz. stone. Therefore it is to the structural requirements of the age that we must look for any development. How rapid this development was is illustrated by the wonderful series of cathedrals erected in Western Europe during the thirteenth, fourteenth, and fifteenth centuries. In these buildings we see how reason ruled matter, and how the same force which brought their art to its perfection also wrought its downfall; for at the end of the fifteenth century Gothic architecture by striving after external formalism overreached itself. The nature of the stone was set at nought. Feats were required of it which were unnatural; extreme skill in handling material defied common sense and caused the decline of the style.

As France was the cradle of Gothic art, it will be most suitable to trace the progress of the style in its own home. Gothic architecture was not a development of Romanesque. The lay school of the twelfth century broke with ancient tradition and introduced a style founded on rational methods of construction. The Gothic builder aimed from the first at obtaining equilibrium in his building by opposing active forces to active resistance. The resulting appearance or style depended entirely on structural necessities. When an ornamental feature was desired it was not constructed purely for ornament, as the Romans constructed their decoration. Thus the belfry grew into the magnificent bell-tower best illustrated in the English Gothic of Lincoln and Canterbury Cathedrals; the tower roof grew into the spire so common in Germany, where the famous open-work spires of Strassbourg and Freibourg show such a want of consent between material and design; the extra weight required on the buttress grew into the ornamental pinnacle most boldly treated in France, and more especially in the choir of Beauvais the window mullions were curved into tracery, of which some of the richest flamboyant examples are to be found in the fifteenth-century St. Maclou, Rouen.

The aim of the Romanesque and Gothic builders was the same, *i.e.* the perfecting of the vault system, but the methods they employed were different. The most radical change in the construction lies in the use of the ribbed vault, and this permanent scaffolding, as one might term the ribs, was one of the greatest discoveries ever made in construction, and is certainly the keynote of Gothic work. The history of Gothic construction is contained in that of the rib and its attendant the flying buttress.

A vault rib was no new thing, for the Romans had used it centuries before, only in their artificial manner they had concealed it in the mass of inert filling. It was by giving prominence to the rib, and by making use of an active instead of an inert shell, that the Gothic mason created a style.

In ancient buildings we feel that the material gives out only a fraction of the effort of which it is capable. Now in Gothic cathedrals we feel that matter works to the limit of its resistance. We have even documentary evidence that architects calculated the strain their material was capable of bearing. In the transactions relating to the building of Milan Cathedral a dispute is recorded relating to the thickness of buttresses. A Frenchman had criticised them as being too slight; the Italian masters argued they were sufficiently thick, for the marble and Sarizzo stone used on the cathedral could bear twice the weight borne by Paris limestone. The mediæval builder appreciated the nature of his material, and out of its true use has been developed the greatest of all architectural styles.

Only a change of method can revolutionise art and science, and this change first took place in vaulting. The disadvantage of the Romanesque groined vault with keystones of different levels was so apparent and irremediable that the ribbed vault was adopted, and the alterations in construction that the rib entailed form the basis of what is now called the Gothic style.

The first effect of ribs carrying the whole weight of the vault was to concentrate the load on the nave piers, which resented the stress and buckled. To remedy this evil the flying buttress was designed. At St. Denis *circa* 1140 we see the first attempt to produce, by use of buttresses, a system of equilibrium. M. Gonse shows ably how Abbot Suger's first systematic application of this new principle was the last of a series of experiments covering a period of fifty years, thus demonstrating that the aims of Romanesque and Gothic builders were identical.

Plan.—In this early example of a buttress resisting the thrust of a ribbed vault arch we notice that the system of vaulting to be adopted gives the plan of the apse. So surely was the construction of the vault the starting-point of a design that in later French buildings when the system was fully developed, from the plans of a church, the main features of the structure down to the number of mouldings and the section of the vault ribs can be reproduced. In Amiens Cathedral, begun 1220, we see for the first time the principle of the Gothic style successfully carried into the smallest detail. On the construction of the vault depend the walling, the form and dimensions of piers, their spacing, the width and height of the windows, the position and strength of the buttresses, the size of the pinnacles, the number of the flying buttresses, the roofing.

Let us take each feature in turn and see how the structural requirement of the vault modified and developed the style.

Wall.—Practically speaking, there are no walls. With the earliest Gothic builders the arch dictates the vertical point of support, and from it alone is the architecture derived. The Romans used the arch largely, it is true, but their points of support were inert masses; the voids were practically dug out of the block. In Gothic work each point of support is stable only as long as it is propped and loaded. Every thrust of an arch is counteracted by another arch. Walls disappear. They are used to block up, not to carry; a contrast to the walling in the great temple at Agrigentum, where the intercolumnar walls carry the lintels.

The choir of Prague Cathedral is an example of one of the triumphs of construction achieved in the fourteenth century. The upper part is a glasshouse, and has literally no walls, the masonry being reduced to the vaulting shafts. Again, in the clerestory of the choir of Amiens Cathedral the solid area is one fortieth of the void space. Even modern warehouses are modest in their attempts to remove wall masses and to substitute glass, when compared with these examples of Gothic construction.

The system is one of airy lightness coupled with imposing boldness, and consists of a skeleton which stands not by reason of its mass, but by a combination of oblique forces which neutralise each other. It was only thus that a minimum of material could be employed, and it was in the thirteenth century when this requirement of a maximum of space and a minimum of material was successfully dealt with that pure Gothic was developed. Mr. Jackson expresses it thus: " Romance and sentimentality had no part in the creation of Gothic architecture; it was moulded to the forms under which we find it, by carefully satisfying social and individual requirements and diligently observing the stern necessities of convenience and economy."

Pier.—The Romanesque pier was wasteful of both material and space. It had to resist the thrust of the vault, and was made correspondingly sturdy. Now economy of material was a great consideration with mediæval builders, who had to contend with difficulties of transport and local regulations hard to realise nowadays. A reduction in the quantity of stone implied a corresponding reduction in trouble, anxiety, and expense. Again, in Romanesque monastic churches the seating area was not a serious matter, but in cathedrals it was of the greatest importance to minimise the obstacles to sight and sound. Early cathedrals were not only places of worship, they were public buildings used for civil purposes, a sort of sacred forum, and intended to accommodate large numbers. Added to this in the thirteenth century the preaching orders of Franciscans and Dominicans arose, and a demand was created for spacious halls. In Italy, in the churches founded by the preaching orders, there is no division into nave and aisles. The church consists of nothing but a large hall for the congregation, with a chancel for the choir and a wooden ceiling thrown from wall to wall. In France we find another practical and sightly plan in the great two-naved cathedral of Toulouse, where the 60-feet-wide naves are spanned by noble vaults.

In the basilican plan the simplest way of increasing the floor space without increasing the actual size of the building would be to diminish the area of the solid supports or, in other words, to reduce the pier. At first every vaulting arch, wall, transverse and diagonal, sprang from the abacus. Experiment showed the advantage of keeping the keystones at one height and of giving the varying spans more or less the same acuteness of arch. This could only be attained by making the ribs spring at different levels, so that they interpenetrated. Interpenetration meant a lesser section at the lowest springing, which meant a smaller bearing surface, which meant a reduced pier. A further modification due to the difference of levels in the springing of the ribs was the suppression of the abacus. When the smallest section of the arch bed corresponded in size with the pier itself a larger bearing surface was needless. The abacus became superfluous, and in the fifteenth century the ribs of the vault are continued to the ground level in the form of piers, whose spacing in France, though not invariably in England, corresponds to the limits of each bay of the vault.

Windows.—One of the most important results of concentrating the weight of the vault on piers was the possibility of opening broad high windows. These totally altered the character of the interior by admitting a flood of light which produced effects hitherto undreamt of. The natural limits for the window opening would be the external pier and the wall rib of the vault. Indeed in the thirteenth century this rib often penetrated to the exterior of the wall and formed the relieving arch of the window. There is one peculiar exception to the vault limiting the height of the window, and that is in the early Burgundian churches. Here the wall rib is isolated from the wall and carries the vault only, while on the exterior the window can be carried up to any height.

Buttress, Pinnacle, and Flying Buttress.—As these are external structural requirements, existing simply on account of the thrust exercised by the vault, their arrangement, size, and number will depend wholly on the position, strain, and height of the internal vault.

Roof.—The Romanesque outer roof was of low pitch, rarely exceeding forty-five degrees. The Gothic roof, on the other hand, was made a prominent feature, and it rose sheer and steep, forming a mountain of slate in Ulm and Rheims Cathedrals. The more domical the internal vault, the higher must the external wall be raised above the wall rib in order to carry the wooden roof. This entails a waste of material and money. The thirteenth-century builders saw this and made great efforts to reduce all keystones to the same level. This resulted in the surface of the shell becoming at times so undulating that it threatened to fall in. To avert this, intermediary ribs were added, which stopped short at the lierne joining the key of the diagonal to the key of the transverse arch. The development of French vaulting stopped at the introduction of these necessary ribs. It remained for the English builders to multiply the ribs till they became decorative and not structural, the final development being the fan-tracery vault whose shell carries the ribs, and is convex instead of concave in form. In Henry VII.'s Chapel, Westminster, the form is so much at variance with reason that pendants replace the pier in the work of supporting the ribs.

Thus we see how a change of method in vaulting brought about a complete change of appearance in building, and how new methods of application developed new forms which were afterwards classified as a style.

Ornament.—One of the happiest inventions of the Gothic builder, and one of the chiefest glories of his cathedrals as exemplified at Chartres, is to be found in stained glass. This followed almost as a necessity on the design of such large windows as were required to light vast buildings in the north. It was a natural wish to beautify features of such dimensions as these windows, and the obvious decoration would be glass of various colours, through which the light would enter as through a collection of jewels.

Colour decoration on the walls was not so largely used as in the previous styles ; indeed in late Gothic it was not used at all. For one thing the coloured light transmitted by the stained glass would have neutralised the effect of colour on the walls ; and secondly, the complicated and skilful combinations in construction would lose some of their effect were the eye distracted by colour.

This preference of form to colour is emphasised by the profuse use of sculpture, the noblest of all ornament. Gothic architects were alive to its value, and in all their best work statues abound. They add life to the whole, and, though often uncouth and grotesque, enhance the architectural effect. Where more modest decoration, such as carving, served the purpose, the same spirit that led the Gothic builder to trust to his own resources and abandon Roman-Byzantine traditions led him to discard foreign ornament. Henceforth ornament as well as construction is home-born. Strings, mouldings, capitals, keystones, are covered with flowers and leaves taken from local flora. This imitation follows a methodical process. Just as buds and shoots first appear in nature, so these are the first to inspire the sculptor, and are used to emphasise architectural lines. Later on the mature flower is modelled so closely on nature, and applied with so little discrimination, that it forms no part of the structure, and could be removed without injury to the design.

Castles.—In mediæval times the building next in importance to the cathedral was the castle, and in it we can as surely trace the development from necessity and material. Defence and safety were the primary objects in the design of a dwelling, and the chief dwelling in the town – the lord's castle—was built, where possible, on an eminence. Its plan was necessarily irregular, from the nature of its site and from the changes in its defences required by new methods of attack. Up to the thirteenth century the castle depended on passive strength, which was sufficient to resist the clumsy and feeble methods of attack. Stout walls to resist the ram, and tall towers from which to shoot arrows with impunity were the chief essentials. In the thirteenth century, from circular, these towers changed to ogee on plan, so that greater thickness of masonry was presented to the ram. In the next century the temporary wooden balconies from which missiles were hurled on intending escaladers, and which crowned wall and tower alike, were recognised as sources of danger, for they frequently caught fire from the burning balls launched by the enemy. Necessity demanded some change, and these wooden platforms were built as stone or brick machicolations, and produced some of the finest effects to be found in mediæval castles. To start with, they were purely utilitarian, but they look so imposing and business-like that they were retained on sixteenth-century castles, though worse than useless against artillery.

Another effective feature in these buildings is the battering wall. This, again, was dictated by necessity. If once the enemy could reach the foot of a perpendicular wall he was in comparative safety. But if the wall had a batter he was compelled to halt some distance horizontally from the archer, who could thus bring his aim to bear.

In the fifteenth century artillery was so much improved that the shock of cannon shook the high roofs and slight vaults of the strongholds. These were removed, and gradually tower and wall were lowered, till nowadays defences are level with the ground, and are made as invisible as possible instead of towering up as visible signs of power and dominion. What science has gained, art has lost, and this is apparent not only in matters military.

RENAISSANCE.

With the fifteenth century in Italy and the sixteenth century in Northern Europe modern times may be said to begin. Renaissance architecture is the direct consequence of this birth of modern civilisation. The characteristics, political and social, of the Middle Ages were thrown off, and the history of this upheaval was recorded in architectural monuments.

Whenever there appears a group of buildings upon a great scale, it means that some peculiar and powerful social force is at work. The force at work here was human culture as opposed to ossified scholasticism; the recognition of the individual instead of the community; in a word, the reform of society. Italy enjoyed comparative quiet; France had become a united kingdom; England was at peace with her neighbours. Consequently there was a general settling down of society, and by far the largest group of buildings in these three countries consisted of dwelling houses upon whose decoration the same ingenuity and labour were expended as in mediæval times had been lavished on ecclesiastical buildings.

This style can hardly be said to be much influenced by material. Whether the building be of stone, brick, plaster, or wood, the attempt is always made to preserve the same outward forms, though in the early stages of the art great variety resulted from the sway of individual fancy over tradition. That structural requirements are its basis is illustrated by the different aspects it assumes in Italy, France, and England according to the national life and customs of each country.

Plan.—In Italy there is a total absence of comfort in the plan. The dwelling, palazzo or villa, consists of a series of vast apartments, of a collection of porticoes, halls, and galleries, meant only to please the eye. This was partly the result of the outdoor life led by the Italians, who required, not a home, but only state apartments in which on ceremonial occasions throngs could congregate. Partly it was due to the Italian temperament, which was more artistic than practical, and laid more stress on the decorative appearance than on the purpose of a building.

In France the plan of the chateau is the horizontal version of the mediæval keep. One large guard-room after another has to be traversed before the private apartment of the master, a similar vast chamber, can be reached. It was only towards the middle of the seventeenth century that small rooms were generally included in the plans of a dwelling, and led to some degree of comfort and privacy.

In England the houses were neither palaces nor castles. They were simply country seats, and correspondingly comfortable and homelike in their internal disposition.

Wall.—In Italy stone or brick was used according to the local material. In Florence the great rusticated blocks of the Pitti and Strozzi Palaces recall the huge masonry of ancient Etruscan builders; while in Lombardy, especially in Bologna and Ferrara, the local brick is treated in as grand and decorative a manner. It is interesting to note that the fifteenth century took up Roman architecture at the point at which it had been dropped eleven centuries previously; that is, when it was freeing itself from Greek influence and developing an outward form of its own. The Roman builders were gradually working away from the screen of Greek columns, which they had flattened down into inconspicuous pilasters, and the next step would have been to omit the pilasters altogether. Alberti's Palazzo Rucellai in Florence and Bramante's Cancelleria, the first Renaissance building to be erected in Rome, were faced with very flat pilaster strips, not with Classical columns. But the style, instead of advancing, worked backwards, till its leading principles of symmetry, strict uniformity, and constant repetition tyrannised to such an extent over the design that a whole was produced, often masterly and majestic, but always a sham. The spirit of Renaissance architecture, when matured, is the antithesis of the spirit described by Leighton as actuating the builders of the Middle Ages, "masculine independence, fearless sincerity in expression, scorn of shams, and trust in Truth."

In France and England the design and construction remained Gothic long after so-called ancient decoration had been imparted. Lescot, in his splendid design for the Louvre, 1541, was the first Frenchman to work on Classical principles and to produce a model for the true French Renaissance style.

In England it was only in 1620 that Inigo Jones introduced Palladio's strict rules for Classical building. For fifty years previous to the erection of Whitehall, a design remarkable for its Classical feeling, builders had been content with a Gothic shell plastered over with Roman detail.

There is an important difference in the treatment of openings between Italian and northern builders which shows the latter to have been the better constructors. In Italy a void was left in the stone wall, and the marble frame to the window or door opening was inserted like a wooden frame would be. In France and England the ornamental work was built in along with and tailed into the rest of the wall.

Roof.—In the three countries there is a marked increase in the use of timber for ceiling and roof. Vaulted ceilings are rarely met with, especially in the north; whereas wooden ceilings, elaborately carved and painted, or covered with modelled plaster-work, are some of the most beautiful decorations of Renaissance buildings.

The wooden roofs of Italy are flat or of slight pitch, as is usually found in dry, sunny climates. In France the Gothic wealth of sky-line is perpetuated in the early towering, high-pitched roof, with its forest of chimneys and dormers, and in the later imposing Mansard roof, which add immeasurably to the effectiveness of the great French Renaissance buildings. In England a compromise was effected by the use of a pitch which was sufficient to carry off the abundant rain water and yet did not give undue prominence to that unclassical feature, the roof.

Ornament.—In Italy every art and every handicraft was called in to adorn the building, and their harmonious co-operation produced works of the highest importance and of singular beauty. Owing to the dryness of the climate nearly every method employed internally could be applied externally, including sculpture, painting, mosaic, marble inlay, modelled plaster, enamelled terra-cotta, metal-work, and wood carving.

In France and England the dampness of the atmosphere would not admit of these various methods, so that the external ornament is generally restricted to stone carving. This is of surprising beauty in France, where the builders did their utmost to relieve the coldness and monotony of Classic imitation by the variety and richness of a resolutely modern decoration. Such colour decoration was used as could be obtained from the juxtaposition of constructive materials, brick and stone or wood and plaster. Wood carving was also largely practised.

It is only in its early stages that the Renaissance style shows conspicuous national differences. When it was fully matured, and all Europe had acquired a thorough knowledge of the form though not of the spirit of Classic architecture, these characteristics are less apparent, and independent national feeling vanishes. The chief aim in every design seems to be concealment both of arrangement and material. Antique forms are only an external and carefully selected garment applied from choice and not from internal necessity.

In Italy plaster is widely used to conceal the cheap brick construction of palaces apparently built of stone. Rows of windows, alike in size and importance, give light to rooms of various dimensions and purposes. Balustrades crown the cornice, and effectually conceal the presence of the roof.

In France the wearisome pomp and artificial graces of the hôtels inspired by the Roi Soleil are far removed from the freedom and charm of the buildings of the truly sunny sovereign François I. This striving after the monumental and massive reaches the climax under Louis XVI., where luxurious and dainty interiors are masked by exteriors worthy in their gloom of a mausoleum.

In England eighteenth-century work was very correct and very meaningless. The architects were so determined to be Classical at any cost that they consulted neither requirement nor material. They remind us of the orator who " in his great solicitude about the choice of words was indifferent enough to the value of his meaning." Late Renaissance is merely a dress, and uncomfortable at that, forced over a reasonable construction, and springing, at any rate in the north, neither from need, climate, nor material.

It is not in the attractive secular buildings of the Early Renaissance nor in the repellent examples of the later period that we find the most important feature of the style. Though the temple is the least characteristic of Roman buildings, the church is the most important among the buildings of the revived Roman style, and the one in which we find the chief glory and the greatest achievement of Renaissance architects, *i.e.* the dome.

The ancient Roman architects cast their domes in concrete borne on solid walls. The greatest architect of modern Rome boasted he could hang the Pantheon dome in the air, and this he has virtually done in St. Peter's.

In plan the churches do not much differ from those in use before the Classic revival. Since this revival did not affect Roman ritual there was no necessity for altering dispositions. In construction they naturally affect the round arch and solid wall, the outward and visible signs of Roman work. The architects also reverted to the heavy system of pillars and tunnel vaults, and in all cases sought to combine with the building the design of a mighty dome. In their decoration the designs betray the painter or the sculptor according as their artist belonged to the class of painter or sculptor-architects.

In France very little church building took place during the Early Renaissance, but a notable feature is the substitution, when restorations took place in a church, of domes for spire and tower. The magnificent eighteenth-century domes of the Invalides and of the Panthéon rank among the greatest of cotemporary works in Europe.

In England, or rather in London, there was great activity during the seventeenth century in ecclesiastical building owing to a twofold structural requirement. The Great Fire had destroyed church and dwelling alike, and the Reformation, introducing a new form of worship, necessitated new plans and new treatment. The extraordinary genius of Wren produced our great domed cathedral, which, though smaller in size, is more imposing than St. Peter's itself. Although much of the internal and external effect at St. Paul's is due to subterfuge and deception, Wren has met all practical requirements with such skill, and treated the detail with such intelligence, that the whole building stands a monument to his artistic genius.

The splendid series of stately parochial churches Wren designed prove that he did not bestow his best work only on large buildings. In these churches he avoided the inconvenience of pillared Gothic plans, unsuited to modern ritual and ill-adapted for seeing and hearing. He provided the most varied schemes, all well suited to the special purpose they were intended to fulfil, and the best that could be produced in the circumstances. These circumstances were of a hampering nature. Wren had no precedent on which to plan, for the new religion had to create precedents ; but the solution in St. James's, Piccadilly, for seating 2,000 persons, so that all might see and hear equally well, is truly masterly. He was further hampered by want of money, want of time, and want of room. London was rebuilt after the Fire without any methodical plan, and the irregular sites, squeezed in between secular buildings, demanded the greatest ingenuity in planning, if all the available space was to be utilised and the Classical principle of symmetry not violated. The external treatment of these churches was forced in a measure on Wren. He had to build largely in brick for the sake of economy and of rapidity in construction. For the same reason he left the brick bare and unadorned. Even had he ornamented his construction, the effect would have been destroyed by the crowding of the surrounding houses. Instead of squandering his decoration, he kept it for the towers and spires, features which he may claim to have introduced into Renaissance architecture. These rise clear of the house-tops, so that every detail of the design has its full value, as is illustrated by the most successful of all Renaissance steeples—that of Bow Church.

These restrictions, united with a keen appreciation of the structural requirements and the fitness of things, controlled Wren's genius and brought about the peculiar English development of the art of the Renaissance.

Modern.

Modern architecture is so complex, it has to satisfy so many wants of such varying kinds, that it is difficult to trace its development along a single line.

In France, it is true, an official school of architecture has existed for 200 years. It propagates what one might call the Parisian-Classic style, which, like other Paris fashions, influences Continental and American art. Architects are compelled to work in the style of a strange people and to follow the creations of other times, the result being that their designs are prejudiced and hampered by senseless conditions. But that officialdom has not succeeded in quenching the fire of French art is apparent in a number of recently erected buildings, among which the two Palais des Beaux-Arts stand out as triumphs of modern Classic design.

In England the opposite state of affairs exists, and it may be that the very licence allowed to architecture is the reason why our modern style develops so slowly.

It is hardly an exaggeration to say that in England the development of modern art began only within the last thirty years. Throughout the nineteenth century we have had only a perennial reproduction of long-past forms, an eternal Renaissance of bygone styles in rotation.

Finally they are all produced simultaneously, so that the architecture of all nationalities at all periods of civilisation combines to illustrate the needs of nineteenth-century England.

But during the last few years a change has taken place, especially noticeable in domestic architecture. Not long ago it was considered bad taste to own a house differing from that of one's neighbour; now houses can hardly be designed sufficiently varied to satisfy clients.

Plan.—In plans especially the increasing demand for comfort, luxury, and labour-saving devices taxes the ingenuity of the architect and betrays the tendencies of the age.

Wall.—Elevations are as varied as the plans. Since a State building should bear the impress of national tendencies rather than of individual taste, it is only logical that the house of the individual should bear a personal rather than a national character. And this is exactly what we find. The men who are developing the art, and who are more often called upon to design private than public buildings, stamp their personality on their works. As in the early days of the Renaissance, when architects raised their profession from the vilifying influence of the guilds, so it is at the present day in England. The design betrays the artist. But whereas the architects of the Renaissance worked in one style, having one aim in common, *i.e.* to reproduce Classic work, the aim of the English architect is to embody in his design each his own particular conception of beauty. Since these conceptions are based on many periods of many styles in many lands, the result is that our modern architecture is many-sided. Nevertheless it is distinct and characteristic. Not that construction is more skilful than in days of yore; not that material is differently used or more suitably applied; not that detail is more artistically treated than in Early Renaissance work. The secret of the distinctiveness of modern work lies in the modern personality of the artist, and, paradoxical though it may seem, the more he sacrifices to structural requirements, the more he yields to the nature of material, the more strongly is his individuality stamped on his design. The art is a personal art, and as such it reflects the personality of the artist; or, in Buffon's words, "Le style c'est l'homme."

Plan.—The requirements of public architecture are no less various. We need Government and municipal buildings, offices, educational establishments, charitable institutions, resorts for amusement, railway stations, colossal hotels, and other buildings whose uses were undreamed of two centuries ago. In addition the complicated requirements attached to a single structure task the capability of modern architects to a far greater degree than their predecessors were tasked. The marvel is, not that so many buildings are badly planned, but that so many successful solutions are forthcoming to apparently impossible problems.

Wall.—The charge of meaninglessness and tastelessness brought against much modern work is due in a great degree to the abuse of facility in construction. Besides the stone, brick, wood, terra-cotta, and concrete of former ages, the modern architect has the invaluable adjunct steel which in all situations of stress and strain overcomes the limitations of the weaker building materials. The unsatisfactory appearance of much of our town architecture is due to the unacknowledged use of steel; to its concealment behind a mask of architectural drapery the which being purely decorative ignores the nature of its material and assumes forms at variance with the structural necessities it purports to fulfil.

It is true the Roman masked his constructional concrete as we mask our steel, but the outward form of the Roman dress was in harmony with constructional requirements. The bearing of the ornamental stone lintel was no greater than a structural lintel could have spanned; the voussoirs of an ornamental stone arch were as deep as a structural arch would have required. The Greeks no doubt condemned concrete as a non-architectural material, just as steel is condemned now by the conservative-minded. But in the same way as we look back admiringly on the concrete architecture robbed of its Greek dress, so will future generations include steel among their legitimate architectural materials.

This use of steel in the construction of walls, both to span openings and to replace the pier, is the result of a structural requirement. In a town whose population and commerce are steadily increasing, it is of importance that offices and warehouses should be near the centre of business; therefore such buildings, instead of expanding laterally and taking up valuable ground space, are made to expand upwards, and that material has to be used which will combine stability with economy of space.

Roof.—The necessity of providing against fire which led Roman and Gothic builders to vault their buildings has led the modern builder to use steel, protected by fireproof material, for his roofs and ceilings. The advantage of steel over the older method is self-evident. In crowded towns there is no room for deep buttresses and massive walls. The steel girder exerts no thrust like the Gothic arch, and its weight does not require the substantial support the Roman vault required. Added to this even the Roman dared not cast a flat concrete ceiling over a greater span than twenty feet, which is insignificant compared with the span of a flat steel girder. Then, again, only the use of steel has made it possible to admit sufficient light through the roof in such buildings as from their purposes require a strong light from above.

Ornament.—We are only just beginning to learn that since most of us live in towns, it is a duty we owe ourselves to make them as comely as possible. The result of this awakening has been an outburst of decoration on buildings which, though often unsuitable, shows a growing desire for art. As a result of our social condition, the class of buildings from which we must expect the growing prospects of town architecture is the class devoted to commercial and business purposes. It is just this class which is most scathingly criticised as being showy in design, deceptive in construction, and lacking every distinction of good art.

The fact that so much of this architecture is a screen accounts for the injudicious application of the decoration. When features are no longer constructional, their original purpose is neglected, and they assume irrational decorative forms. So long as only structural features were enriched there was a limit fixed to the decoration, but when these features are applied as decoration, there is nothing but good taste to limit their multiplication.

The extensive use of terra-cotta is another cause of excessive ornament. By its nature it is so easily modelled and so cheaply produced that it requires great control on the part of the architect to stay his hand. Superfluous decoration and exuberant ornament are the characteristics and chief attractions of Early French Renaissance. But being wrought in stone by artists, this enrichment has a spontaneity, a joyous variety, which is foreign to the mechanical process employed in turning out terra-cotta enrichments.

Yet in spite of the erection of many vulgar and exaggerated buildings others are being daily constructed which testify to an increasing development of the æsthetic element. Banks are willing to pay for costly though quiet marble façades; offices are decorated by the chisel of leading sculptors; shops sacrifice plate-glass expanses to architectural subdivision of wall surfaces; recent theatres are both dignified and artistic in their decoration. There is altogether a craving after better things, and architects are not backward in responding to the requirements of the public.

In America an architecture is being developed which is startling and characteristic of the nation which sacrifices so much to the almighty dollar. There the life of a town building is ten years at the most. "You British use a thing till it becomes useless. We Americans use a thing only till we get something better." That is what the American says, and he practises this precept in his building with a fervour that to us looks wasteful if not criminal. For surely durability is an essential characteristic of the art which writes the history of a people in its monuments.

It is not surprising that the practical material steel should have found favour in the eyes of this practical people, and that their steel skeleton structures should belong to the "skyscraper style." In New York, which, from the nature of its site, cannot expand laterally, the necessity of growing vertically has led to the construction of "the sharpest thing any architect ever perpetrated." There we have a block of offices—the highest in the world—towering 382 feet in the air—that is, forty-two feet higher than our Victoria Tower. It contains the stupendous weight of 9,000 tons of steel. Without steel piers a building of this height would have necessitated walls many feet in thickness, so that a large proportion of invaluable floor room would have been sacrificed to the supporting area. By the use of steel, which can be erected at incredible speed—two stories a week is the usual rate of progress in these giant buildings—time, material, space, and cost are saved, and infinite facility afforded for internal arrangements.

The greatest of all architectures was developed by bestowing strict attention on these matters, and a modern style worthy to rank with those of the past will eventually arise by adhering to the same principles while consulting altered conditions; for

> Not in vain the distance beacons. Forward, forward let us range;
> Let the great world spin for ever down the ringing grooves of change.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS 1834

INCORP. 1837 1887

9, Conduit Street, London, W., *20th May* 1905.

CHRONICLE.

Last Monday's Lectures at the Institute.

The Institute on Monday was favoured with two admirable lectures by Messrs. T. Stirling Lee and W. Reynolds Stephens on Sculpture in its Relation to Architecture. Mr. Stirling Lee's was delivered extempore, and some remarkably telling points bringing out the subtleties practised by the ancient Greek sculptors in their ornamentation of buildings, were illustrated by bits of the frieze of the Parthenon shown by photographs. An interesting discussion was contributed to by Sir John Taylor, K.C.B., Professor Beresford Pite, Mr. Hugh Stannus, and the President, the two first named proposing and seconding respectively the vote of thanks. Owing to delay in the preparation of the MS. publication of the lectures and discussion is postponed to the next number of the Journal, when they will be given with the illustrations. Mr. Alfred Gilbert, R.A., and Professor Lanteri, who had been expected to read Papers on the subject, were unavoidably prevented from attending, and the President made their excuses to the Meeting.

Public Works and Municipal Officials.

Writing to the Secretary on the subject of the Institute Memorial *re* the carrying-out of architectural works by municipal officials [Journal, 10th December 1904], Mr. C. H. Strange [*A.*], of Tunbridge Wells, says:—

"It was not until to-day (3rd May) that an opportunity occurred of presenting the original memorial to our Town Council, and that was done at the monthly meeting this morning. You will be pleased to hear that the Council threw out the scheme of the Borough Surveyor for a new court-house, and that if the proposal to build goes any further there is some probability that the subject of employing an architect will be reconsidered. I think the action of the Council in rejecting the report of its General Purposes Committee to proceed with the Borough Surveyor's plans was brought about, to some extent, by the opportune presentment of the memorial."

Mr. Strange asks for the publication of the above, thinking it may lead others to follow his example. He had ascertained, it appears, that the Memorial had not been presented but had been pigeon-holed in the Town Clerk's office, and through his exertions a Councillor brought the matter forward and the document was read before the assembled authority.

The Intermediate Examination, Sydney, N.S.W.

At the Intermediate Examination held in Sydney, New South Wales, last November, under the management of the New South Wales Institute, three candidates were examined and the following two passed—viz.

ISAACS: Robert Macintosh [*Probationer* 1904], 50 Gurner Street, Paddington, Sydney.

SHIELS: Nicholas Villar [*Probationer* 1904], Farnham, Allison Street, Sydney.

These gentlemen are now registered as *Students R.I.B.A.*

The A.A. Sketch-book.

The Committee of the Architectural Association desire it to be known that the *A.A. Sketch-book* is entering a new volume and that there are several vacancies in the subscription list which they would be glad to see filled by members of the Institute. The peculiar merits of the Sketch-book are too well known to need mention here. The work forms a precious record of all that is excellent in the architecture remaining to us of the past, and as such is of incalculable value to the architect student and an endless source of delight to the cultured amateur. Turning over the leaves of any of the recent volumes, it is apparent at once that only the choicest subjects are chosen and that only the most skilled rendering of them is acceptable to the editors; also that only the most approved processes are employed for their reproduction. Unhappily, owing to the heavy expenses of production, the work is run at a loss—and a burden of this kind, in view of its still unliquidated building debt, the Association can ill afford to sustain. It is with the hope of reducing the loss on the Sketch-book that the Committee invite members of the Institute to enrol themselves on the list of subscribers.

A Presentation Medal.

From the Library Committee of the Corporation of the City of London has been received one of the Medals struck by order of the Court of Common Council to commemorate the visit of the King and Queen to the City on 25th October 1902 and the Thanksgiving on the following day for the King's recovery from his illness. The obverse bears representations in relief of their Majesties, and is inscribed on the border, "In honour of the Visit of their Majesties King Edward VII. and Queen Alexandra to the Corporation of the City of London 25th October 1902." The reverse shows their Majesties seated on a raised daïs, the chairs being surmounted by the Royal Arms and the Arms of the City of London. An address of welcome is offered by the City, which is represented by a female figure, draped, wearing a mural crown. Behind is the figure of Fame proclaiming the event. The front of the Guildhall, surmounted by the Royal Standard, forms the background. At the base are the sceptre and mace, symbolising royalty and the civic power. In the left lower corner are sprigs of myrtle with a scroll entwined bearing the motto "Civium Amor et Fides," expressing the loyalty and devotion of the City of London towards the Throne. The Medal has been added to the collection of medals in the Institute Library.

The Roman Forum.

Mrs. Burton-Brown, in a Paper read before the Society of Arts on the 3rd May, gave an interesting résumé of the results of the excavations in the Roman Forum which have been going on under the direction of Commendatore Boni [*Hon. Corr. M.*] since 1898. All the remains of classic Rome which are most full of significance, and which throw the greatest light upon the Romans, upon the development of their religion, their political institutions, and their life, have been revealed during the seven years of the Commendatore's work. He had striven to reach the remains of kingly and republican Rome, and his success has exceeded all expectation.

The period of the Republic (says Mrs. Burton-Brown) has few remains of importance in the Forum which distinctively belong to it, although it is very clear that the notions of the Romans of that most important time in their history, as to religion and as to political aims, are greatly elucidated by the monuments discovered. Pavements and mighty drains of Cato and his contemporaries can indeed be pointed out *in situ*, and the latest discovery (the Lacus Curtius) is one which must not be forgotten. Ovid remarks that in the spot where the gulf opened and closed upon Marcus Curtius, a pavement had in his time been laid down. This pavement, together with two others beneath it, has come to light in the centre of the Forum, and upon it is part of the altar where sacrifice was performed to the manes of Curtius.

Julius Cæsar determined to put an end to the Republic, and to establish an autocracy based upon a wide democratic popularity. As he planned to transform the State, so he transformed the Forum. The buildings in it, whether consecrated to religious or to political uses, had been orientated according to the sun's course when they were inaugurated by the augurs. Walls and pavements can be seen in every part of the Forum lying below those of the Empire, and set up on these lines. One by one each was rebuilt or changed by Julius Cæsar and by Augustus, and in defiance of the old customs of inauguration the new imperial Forum grew up, a broad open square following the natural conformation of the valley and the Capitol. This Forum was dominated by the new rostra of Cæsar, from which the orators addressed the mob assembled in the open space, and no longer the free men of the Comitium. It was lined on both sides by the Basilicæ Julia and Æmilia, and at the further end, appropriately enough, stood the Temple of Divus Julius, just behind the altar which Augustus erected on the site of the pyre of the great dictator. The people as they assembled in the Forum saw it surrounded by monuments of imperial magnificence, and the lofty Temple of Julius, together with the triumphal arch of Augustus, shut the primitive shrines of Vesta, Juturna, and the Regia out of sight and out of mind. In order to enhance its popularity Julius determined to hold the games on a scale of greater splendour than before. It was difficult to find room for this, and it is now found that he tunnelled its length and breadth by a system of five subterranean corridors. By means of these theatrical properties, fighters and wild beasts were brought beneath the arena, and were hauled up to it by small lifts. There are ample traces of the windlasses by which these were worked. The corridors when found were quite choked with earth and rubbish, and now that they have been cleared they are the most salient proof which could be found of Cæsar's political aims.

Statius tells us that a colossal bronze equestrian statue of Domitian was set up under the emperor in the midst of the Forum. Its concrete base was discovered recently. On searching it Boni found a block of travertine embedded in the concrete. A small hole in the middle of it contained six vases of a very primitive type, a type, indeed, which was in use, as we have every reason to believe, about the eighth century B.C. Their contents comprised some gold ore. We know that Vespasian in laying the foundation-stone of the Temple of Jupiter placed in it unsmelted precious metals, and there can be little doubt that we have here the remains of the inaugural votive offering of Domitian's monument.

Outside the Forum a most beautiful monument of Augustus has recently been partially explored by Signor Pasqui, the "Ara Pacis Augustæ." It was dedicated in the year 9 B.C. by the Senate, in commemoration of the victories of Augustus, and of the opening of that golden age of peace which it was hoped that they might bring to the Roman world. It consisted of an altar of sacrifice raised on a platform, and surrounded by a marble enclosure wall covered with carvings in relief, both on the inner and outer side. A large number of slabs from this wall have long been at the Villa Medici, others in the Vatican, the Uffizi and the Terme Museum. Only recently, however, has it been recognised that they were connected, and that they belonged to the Ara Pacis.

The outer face of the screen had a frieze which represented a procession of majestic and dignified Romans, led by the Emperor Augustus to do sacrifice at a shrine. They comprise four Flamines and other priests, as well as the ladies of the imperial family, and portrait figures of Tiberius, Drusus and others. The sacrifice is offered by a symbolical figure representing the "Senatus Romanus," at a rustic stone altar. The shrine is shown as that of a graceful reclining woman surrounded by the emblems of fertility. She has been usually explained as "Tellus," but may equally well represent Augustan Peace, surrounded by the accompaniments of Fruitful Earth. The frieze may be regarded as the marble counterpart of the Carmen Seculare, which is filled with rejoicing over the prosperity which was expected as the result of Augustus's rule. This processional frieze challenges comparison with that of the Parthenon, and in the contrast between them lies the difference between the ideals of Greek and Roman. Upon the Parthenon all dignity and majesty is concentrated in the figures of the "deathless gods," the people are full of light-hearted gaiety, and not one of them is individually characterised. The true religion of the Romans was their loyalty to the State and its officials; hence upon the Roman frieze the dignity and clearly marked personality of the latter is the first quality which strikes the spectator, and the figure of the worshipped is marked by a merely symbolic grace.

The architectural results of the Excavations in the Forum as far as they had gone up to November 1900 were dealt with in a Paper read before the Institute by Professor Lanciani, *Hon.Corr.M.* [JOURNAL, 12 Nov. 1900].

PORTLAND CEMENT FOR REINFORCED CONCRETE.

Communicated by Mr. BENJAMIN HANNEN, Junr., for MESSRS. CUBITT & Co.

SOME years ago, when carrying out some important experiments on building materials, including cement and concrete, for a firm of architects, we were led to take up the consideration of the qualities of Portland cement in a more detailed manner than is usual amongst contractors, and when reinforced concrete was first brought to our notice it was easy to see that the cement being the most important constituent of the concrete, work could not be properly executed with a cement of inferior quality, and therefore special care would have to be exercised in obtaining a sufficiently good cement. But here a considerable difficulty presented itself. We could see that the ordinary cement then in general use would not be suitable for reinforced concrete; so we decided to draw up a specification based on our own experience, combined with the knowledge we obtained of what was being done in those places where the manufacture of Portland cement had been raised from the common rule-of-thumb methods to a thorough system in which the resources of science had been drawn upon as far as possible.

It was with considerable regret that we found that we had to rely chiefly on French and German sources for the latest information concerning Portland cement—an English invention!

When we first issued our specification we could only find one firm that could completely comply with it; but that cement being produced in only one district, the price rendered it prohibitive, except under very special conditions, when the work was anywhere except in the immediate neighbourhood where the cement was produced. However, we found that some other cement firms were determined to produce a cement of the quality we required, and their efforts have achieved considerable success, for in every work that we have undertaken in reinforced concrete we have not only avoided any failure, but the results have far exceeded our expectations.

There still remains the fact that at the present time the ordinary cement of commerce is not of the quality required for reinforced concrete. It must, however, be remembered that the last word has not yet been said about Portland cement, and that an immense amount of work still requires to be done before the reasons why the material behaves as it does are thoroughly understood. A great deal, however, is being done, and in the meantime we have drawn up a few notes that we now beg to submit for your consideration. They comprise the principal points concerning the methods we use for obtaining a good cement and the methods of using such a cement to the best advantage.

Before giving an order for cement we require answers to the following questions concerning the works of the firm with which we are in negotiation:—

After visiting the establishment, does it give the impression of being properly equipped for the production of good Portland cement?

Are clayey and chalky materials easily obtainable?

Is there a well-fitted laboratory and a staff of experts?

Are samples of the mixture taken at frequent intervals and analysed in order to ascertain whether the substances are present in the right proportions?

Are there appliances and conveniences for putting right any errors found in the preliminary analyses?

Are there rules in force for the vigorous rejection of every particle of unburnt clinker?

If an affirmative answer can be given to each of these questions, then it would be necessary to find out as much as possible of the character of the firm working the business, for it is of no use disguising the fact that the temptation to neglect certain precautions that cost a great deal of money at every stage of the manufacture of cement is very great, and not until we were quite satisfied on the above-mentioned points should we think of giving a large order. If the results of the inquiry were satisfactory we would sooner trust the cement coming from such a firm, without any tests whatever, than accept a new cement which had been tested only as neat cement for seven days.

When the cement that we have ordered reaches the job, a sample is taken and forwarded here and tested in our own laboratory. We first of all ascertain the apparent density in this way: we find the weight of a litre of cement obtained by filling a standard litre measure with the cement by means of a standard apparatus. The weight of the litre of cement gives us a number that tells us the relative weight of cement under the given conditions to water; consequently, if we multiply the number indicating the weight of a cubic foot of water, 62·4 lb., by the number indicating the apparent density, we get the weight of a cubic foot of the cement.

Our cement has to be delivered to the job in bags containing a certain specified weight of the cement; the bags are carefully weighed on delivery, and any errors that may be found are corrected. The cement contained in one bag is used as the unit in mixing the concrete. Knowing the weight of a cubic foot, and also the proportion in volume of the cement to the aggregate, it is easy to make a gauge box containing the exact cubical contents for apportioning the aggregate to the cement by weight. By this means every gauge is practically of exactly the same proportion—a result that is impossible if the cement is mixed by measure.

Specifying the weight of a bushel of cement should be entirely given up; the variations in weighing so large a quantity as a bushel as ordinarily carried out are too great. It is essential that the determination of the apparent density should always be made on the same volume. Bauschinger, the well-known German engineer, carried out a very large number of experiments, and found that the difference between the weight of the same cement in a litre measure and in a 50-litre measure varies as much as 13 per cent.

We use the expression "apparent density" for want of a better one; it would be a good thing if this or some other expression could be agreed upon in this country to indicate this quality. It should always mean *the weight of a litre of cement obtained by means of a standard apparatus.*

The French and the Germans use for this purpose an appliance made on exactly the same principle, but differing slightly in size. We happen to have a German one, and two important firms—Messrs. Earle of Hull and the Associated Portland Cement Manufacturers, London—are now using the same appliance so as to work on the same lines with us.

We attach very great importance to the apportionment of cement for concrete by weight instead of by measure. It is of importance to note that the better the cement the lighter is its apparent density, the specific gravity being at least 3·0.

Having found the apparent density we next ascertain the fineness. We find it stated in *Testing of Materials*, by Professor Unwin, on the authority of Bauschinger, "that the amount of surface the particles of cement expose increases inversely as the diameter of the particles: a cubic inch of cement would have 150 square inches of surface if the particles were spherical and $\frac{1}{25}$th of an inch in diameter, and 600 square inches if they were only $\frac{1}{100}$th of an inch in diameter; so that the area on which chemical action occurs increases as the cement is ground more finely.

"The finely ground cement will bear a considerable addition of sand with less loss of strength than the coarsely ground cement."

Our experience confirms what is stated above.

We find that the residue even on a 180-sieve is of no more value than sand for strength; but, as Bauschinger states, if these same particles are reground, they are converted into a valuable cement.

In consequence of insisting on fineness of grinding we are now obtaining cement that would have been impossible a short time ago. We are using cement that passes through a 50 and a 76 sieve, and leaves a residue of not more than 9 per cent. on a 180. From one lot that we have used the residue was only 5·15 per cent. on the latter sieve; but this is quite exceptional, and at present it would be unreasonable to insist on such a standard being always reached.

The fineness should control the apportionment of cement by weight; if this is done the special quality of the cement will have to be considered, for it will not be necessary to use so much in weight of the best quality cement as of that of an inferior quality.

Take, for example, two good cements that we have lately experimented upon:—

Apparent density	Residue on Sieves		
	50 × 50 2,500 meshes per square inch	76 × 76 5,776 meshes per square inch	180 × 180 32,400 meshes per square inch
A. ·915	none	none	5·15 per cent.
B. 1·282	none	7 per cent.	34 per cent.

If the cement be apportioned by weight, then 915 tons of A. will be equal in cementitious value to 1,282 tons of B., thus giving a difference of 40 per cent. in favour of A.

According to Bauschinger, the saving would be a little more, viz. 44 per cent., as 94·85 per cent. of A. passed through the 180-sieve, against 66 per cent. in the case of B. These two cements were free from any uncombined lime, and each had a specific gravity of more than 3·0.

We think it will be agreed that by the apportionment of cement by weight a much more uniform quality of concrete will be obtained, and, further, if such apportionment be based on the apparent density a direct incentive will be given to contractors to use only the best cement, and their demands would have to be met by the cement manufacturers, who would then be relieved from the incubus that now weighs upon them of having to make different qualities of cement to so many specifications.

We next test the setting. Generally in specifications the time is mentioned, but no reference to temperature is made. To show the influence of temperature on setting, the same cement that set in two hours in a temperature of 75° F. took nineteen hours in a temperature of 34° F. and proportionately between.

The question of the setting of cement is a very difficult one, and we think a great deal more has to be found out about it before the matter can be put on a thoroughly satisfactory basis. For all our work we require a slow setting cement, and this is a most difficult thing to get.

We insist on a time limit at a certain temperature for setting in water. Although we find this method strongly objected to by manufacturers, we have not yet been furnished with any evidence that we consider would justify us in giving it up. It certainly is an essential quality of Portland cement that it should set under water, and its failure to do so would be proof in itself that the cement is not Portland.

The mention in reports of the time of setting without giving the temperature during the time of setting renders the reports on this point of no value whatever.

Tensile Strength.—We venture to express the opinion that figures representing the tensile strength of neat cement at different periods are of very little value.

A cement that we are using had, according to the contract, to be tested by an independent expert; the cement was also tested by the manufacturer and by ourselves. The following figures represent the results at seven days:—

1. Tensile strength of briquettes made by the manufacturer at his works	980 lb.
2. Ditto, made by ourselves	650 ,,
3. Ditto, ditto, but the briquettes prepared by us in a different way from No. 2	1,006 ,,
4. Ditto briquettes made by expert	414 ,,

We could undertake with this cement to make a difference of 400 to 500 lb. tensile strength per square inch at seven days simply by a difference in the preparation of the briquettes.

We consider tests made with cement and sand are much more trustworthy than those made with neat cement, and in our own specification only these tests are described. But all such tests are valueless unless everything in connection with making them is known, and the personal equation of the experimenter known as well.

Moreover, tensile tests of briquettes made with cement and standard sand are only of relative value; they really tell nothing about the actual work that is being carried out; and, further, in all concrete constructions it is the power of the concrete to resist compression that is of chief importance.

Correct information concerning resistance of concrete to compression would be much more useful.

We are therefore making blocks of concrete of a standard size and in the same proportions of the actual materials that we are using on a given building; then after a suitable interval we crush the blocks.

We are also making tests for the purpose of ascertaining the effect of different kinds of aggregate, but always used in the same proportions.

At the present time it is generally supposed that particularly clean gravel and sand are absolutely necessary to make good concrete, great expense having often to be incurred in washing the materials, and in certain districts of getting them from a long distance, because the local gravel and sand are not thought good enough. We are of opinion that when experiments have been made on a sufficiently large scale, it will be found that the present ideas on the subject may have to be modified, and that there is in this country hardly any district which does not furnish excellent materials for mixing with the cement, so long as the latter is of the best quality and the aggregate does not contain any organic matter.

Since writing the above we have received information of experiments carried out by others, all of which support the conclusions that we had come to on the subject. For example, tests extending over a period of three years have been made in America on a sand in which the particles of silicious materials were held together by clay. This sand when taken from the quarry was plastic, and readily caked in the hand like putty, and a coating of fine material clung to the hand while handling it. To one accustomed to the usual specifications for a clean sand, free from foreign substances, the sand in question would be very far from satisfactory.

To the surprise of the tester, the results were superior in every respect to the tests made with standard sand. The seven-day and twenty-eight-day tests of the clayey sand were respectively 40 and 30 per cent. higher.

The difference became less with age, although the three-year test was 20 per cent. above the standard. This, surely, is contrary to the general impression of a good sand, especially at the time these tests were started.

Still another test, which proved the superiority of the presence of clay in a different way. The sand was a pit sand, one sample of which was washed and another was not. The unwashed was 25 per cent. superior, although it contained 6 per cent. of clay.

There are other reports of tests published to show that washing on general grounds is not desirable unless the conditions are unusual.

Specific Gravity.—We use Le Chatelier's apparatus, and insist that the specific gravity shall not be less than 3·0.

Boiling Test.—There seems to be great difference of opinion about this, but we are inclined to regard it as of great importance, and a good way of testing a cement. Certainly each cement that has given us very satisfactory results in actual work has passed the boiling test, and has shown only a trifling expansion when using Le Chatelier's apparatus. But this test for measuring expansion is not very satisfactory, and in case of dispute there would be room for endless discussion. We think this point requires further consideration, and that the latest researches of Le Chatelier should be consulted; it is then probable that some method of testing expansion different from the present one might be adopted to advantage.

A properly manufactured Portland cement is fit for use when it is delivered; but, as an example of present practice, we find in a specification of cement quite recently issued for an important engineering work by one of the most eminent civil engineers in Great Britain that the cement is to be emptied from the bags on to a floor to a depth not exceeding 2 feet 6 inches, and there to remain for *six weeks before being used*, and to be turned over at least four times in the interval.

A variation of the foregoing clause is to be found in nearly every specification for cement, and would appear to be a direct encouragement to the cement manufacturer to save trouble and expense in taking the steps necessary to avoid free lime in the manufactured article; indeed, one might say, Why should he do so?—if the seller knows with certainty that his customer is going to take great trouble and expense to put right the inferior article that he is purchasing. The spreading-out of the cement, as generally specified, improves a bad cement, but injures a good one.

Although so little is known scientifically about Portland cement, there is sufficient known empirically to enable the conscientious manufacturer to produce a thoroughly trustworthy cement; but there appears to be one difficulty not yet completely overcome, and that is the time of setting.

Any information on the point, based on actual experiments, will be gratefully accepted by us.

It is especially to be noted that at the present moment there is no known chemical method of finding out the quantity of uncombined lime in the manufactured cement. We therefore regard the presence in a specification of a scheme for chemical analysis as of very little use to the user of the cement. There is not sufficient known on the subject to make this test trustworthy.

A FAMOUS EARLY GREEK STATUE.

Reference having been made in the lectures delivered by Mr. Stirling Lee and Mr. Reynolds Stephens at the meeting on Monday last to Greek sculpture not immediately allied to architecture, I should like to draw attention to a notable restoration of one of the most unique instances of the perfect period of early Greek sculpture which, I believe, was first brought to light by a party of four English architects who were making the grand tour nearly ninety years ago.

I allude to the lion of Chæronea, which was set up in commemoration of the Athenian defeat by Philip, King of Macedon, on 7th August, B.C. 338, three years before the destruction of Thebæ by Alexander.

It had been hidden under a mound of earth and its position unknown to earlier travellers, who believed in its existence, from descriptions given by ancient writers, as part of the memorial of the battle. It was also the tomb of three hundred of the valiant Thebans who fell fighting on the side of the Athenians in that engagement, the first battle of Chæronea.

Messrs. Saunders, Purser, Cresy, and Taylor, in 1818, in examining some ruins at Kaparina, in Bœotia, about fifty-two miles N.W. from Athens, observed a piece of sculptured marble just projecting from the earth, and on causing it to be removed the head of the lion was revealed, and then other large fragments; for it had been broken up as is supposed wantonly to search for hidden treasure, the statue not being solid nor even originally carved from one block.

An account (probably by Cresy) which appeared in the *Literary Gazette* for 24th August 1824 thus describes it:—"A colossal lion's head of bold, beautiful workmanship. From the nose to the top of the head it measured 4 ft. 6 in., and from the forehead, where broken off just above the shoulder, 5 ft. 9 in. A part of the hind legs lay at some little distance, 2 ft. 3 in. in diameter, together with the other parts of the statue. The earth removed contained pieces of stone and cement that had formed a part of the foundation or pedestal on which it had been placed. It was not hewn out of one block, and it was not solid, but hollowed out for the sake of lightness."

Pausanias in his account says it had no inscription. The position of the beast is *sejant*, the expression calmly defiant, considering it commemorates a defeat. Mr. Taylor used all endeavours to get it removed to England, but they met with no success; and although the British Museum is so much the poorer, it is satisfactory to know that it is at length replaced upon its original site within view of Mount Parnassus, which is, however, twelve miles distant.

It was restored (upon paper) by M. Siegel (*Mon. Soc. Archeol. di Roma*, 1856, Tav. 1), and the general lines of the rectangular plain rustic pedestal he shows have been adopted, an extra plinth, however, added beneath the figure, and a necking and simple mould to the cornice omitted. I am unable to say whether actual fragments justify the design adopted, but its simplicity as compared with the tomb of Mausolus and other heroes is very decided.* As the want of relationship between statue and pedestal was made a strong plea for collaboration of architect and sculptor, any particulars in regard to this instance which our Hon. Corresponding Members could supply would be helpful. The theory that posture in human sculpture has been in ancient and mediæval times guided by definite geometrical angles might be put to the test in this case and in that of the more numerous instances of lions *courant* which are in the national collection. The angles may be seen in regard to the human figure set out in Villar de Honnecourt's well-known sketch-book; and it would be interesting to know from experts whether this is accepted and employed in these days of "free art."

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* An illustration of the monument as now restored appears in *Black and White* of 13th May, taken from a French photograph.

E. W. Hudson.

REVIEWS.

BUILDING SUPERINTENDENCE.

The Conduct of Building Work and the Duties of a Clerk of Works. By the late John Leaning. 2nd edition. [*B. T. Batsford, 94 High Holborn, W.C.*]

This is the second edition of the late Mr. Leaning's book published under the title given above. The first edition was issued in 1898, and was itself an amplified version of *The Duties of a Clerk of Works*, printed in 1887. Many additions have been made to the work for the present issue, the body of the book being extended from 99 pages in the previous edition to 128 in this, the appendix from 35 to 52, and the index from 14 to 25.

The work as it now stands is a general collection of notes upon matters connected with building contracts and with builder's work and its supervision, arranged as far as possible under trade headings. The idea of a handbook upon the duties of a clerk of works is not abandoned, although the notes especially applying to that part of the subject are interspersed with others which, useful though they may be as hints to the young architect, require more careful classification, and a certain amount of further editing to give them their full value.

Perhaps it would have been better to adhere to the original idea absolutely; in any case the scope of the present edition, which sweeps in matters pertaining to every stage of building work, from clearing the site and road-making to the opening ceremony and settlement of accounts, is so much more comprehensive than that of the earlier ones that an altogether larger volume seems to be suggested.

But these criticisms by no means condemn the book, which will deservedly be as popular as its predecessors: it is practical and useful, and its contents are rendered available by a full index.

Matt. Garbutt.

ALLIED SOCIETIES.

DEVON AND EXETER SOCIETY.

Fireplaces and Smoky Chimneys.

At a recent meeting of the Devon and Exeter Architectural Society the subject of "Fireplaces and Smoky Chimneys" was discussed. Mr. E. F. Hooper, who opened the discussion, divided his subject under the following heads:—(1) Badly constructed chimneys in favourable positions; (2) goodly constructed chimneys in unfavourable positions; (3) both; (4) open fireplaces, well-fires, and otherwise; (5) bad planning as to windows, doors, &c.; (6) stoves, grates, &c., which do not readily draw. To make a badly constructed chimney draw, he said, was very troublesome. The owner of a house some while ago spent 30*l.* in trying to improve a defective chimney. It was at last set right by a smith, who suggested a plain galvanised sheet-iron pot, resembling in shape the letter T, with two pipes at the end, stuck in the ordinary earthenware chimney-pot. A well-built chimney and flues in an unfavourable position—under a hill or high building, or near trees—is often a great nuisance. Open fireplaces which include a plain brick or stone opening, without any dog or other grate, seemed to be much in request, both in town and country. A plain, perforated iron grating was placed at the bottom, slightly elevated above the surrounding hearth. Well-fires appeared to be a matter of opinion. When adapting them to old buildings it was absolutely necessary to examine carefully the surroundings, as frequently on the removal of old grates, &c., mouse, rat and other holes take upon themselves the action of flues, which lead to disastrous results. The manner of planning was sometimes a very difficult one; at others it was very easy. Every site had its good and its bad sides, as also had the client, whose ideas often have to prevail, in spite of the professional knowledge brought to bear against the amateur suggestions. Some would have none but large airy flues, while others preferred them as small as possible. Mr. Hooper said that he himself favoured the latter, but he considered the forming of the "going" above the arch a very important one, the size and shape of which must not be lost sight of, especially in ranges.

NORTHERN ASSOCIATION.

The Report for the Forty-sixth Session of the Northern Architectural Association, just published, states that the roll of membership now stands as follows: Members, 78; Associates, 72; Students, 70. Total, 220. With the exception of the Manchester Society, this is the highest membership of any of the Allied Societies. The question of the incorporation of the Association under the Companies Acts is being considered by the Council. Thanks to the generosity of their Past President, Mr. William Glover, the Association will shortly be housed in a home of their own at No. 6 Higham Place, Newcastle. Mr. Glover, it will be remembered, subscribed £1,000 towards a building for the Association, and the Building Committee have been fortunate in securing for that sum the premises mentioned. Members of the Association have been invited to contribute among themselves the £500 required to adapt the premises for their purposes. Mr. Glover has also recently presented the Association with a Presidential Chair in oak, with the arms of the Association carved on the back. In order to bring out the best work of their student members entering for the Institute Examinations, the Association have presented prizes this year for the best sets of Testimonies of Study prepared by them for the Intermediate and Final Examinations. The Council arranged for a course of six lectures on "Quantity Surveying" given by Mr. S. Addison Smith to members of the N.A.A. Students' Sketching Club. Seven essays were received in competition for the prize offered by Mr. A. B. Plummer for the best essay on "The Characteristics of Thirteenth-century Architecture, with special references to its Ornament and Mouldings." At the annual social gathering were exhibited the works prepared by students in competition for the Glover Travelling Studentship and other prizes of the Association.

The following are the Officers and Council for next Session:—*President*, J. T. Cackett [*F.*]. *Vice-President*, G. T. Brown. *Hon. Treasurer*, R. Burns Dick. *Hon. Librarian*, H. C. Charlewood [*F.*]. *Hon. Solicitor*, H. C. Harvey. *Hon. Secretary*, A. B. Plummer [*F.*]. *Members of Council*:—H. G. Badenoch, H. Barnes [*A.*], J. Bruce, F. Clark [*F.*], J. W. Dyson, C. S. Errington [*A.*], J. H. Morton [*F.*], J. Oswald [*F.*], F. Rich [*F.*], J. Spain [*A.*], J. W. Taylor [*F.*], J. W. Boyd, M. G. Martinson, A. K. Tasker, R. P. S. Twizell [*A.*], H. A. Wilson [*A.*].

MANCHESTER SOCIETY OF ARCHITECTS.

The following are the Officers and Members of Council for the ensuing Session:—*President*, J. H. Woodhouse [*F.*]. *Vice-Presidents*, C. H. Heathcote [*F.*], J. W. Beaumont [*F.*]. *Hon. Secretary and Treasurer*, Paul Ogden [*F.*]. *Assistant Hon. Secretary*, George Brown. *Members of Council*:—John Ely [*F.*], J. B. Gass [*F.*], E. Hewitt [*F.*], Jesse Horsfall [*F.*], A. H. Mills [*A.*], J. D. Mould [*F.*], Isaac Taylor, G. H. Willoughby [*F.*], P. S. Worthington, M.A. [*A.*], Godfrey Colles, A. E. Corbett [*A.*], J. H. Gibbons [*A.*].

LEEDS AND YORKSHIRE SOCIETY.

The following are the Officers and Council for the year commencing 1st May 1905:—*President*, G. Bertram Bulmer [*F.*]. *Vice-Presidents*, H. S. Chorley, M.A. [*A.*], W. G. Smithson [*A.*]. *Hon. Treasurer*, W. H. Thorp [*F.*]. *Hon. Librarian*, G. F. Bowman. *Hon. Secretary*, Robert P. Oglesby, 12 East Parade, Leeds. *Members of Council*:—Percy Robinson, T. Marshall [*F.*], F. Musto [*A.*], H. A. Chapman [*A.*], A. R. Hill [*A.*], G. E. Reason. *Past Presidents*:—J. W. Connon [*F.*], Henry Perkin [*F.*], W. H. Thorp [*F.*], E. J. Dodgson [*F.*], W. Carby Hall [*F.*], Butler Wilson [*F.*].

MINUTES. XIV.

At the Fourteenth General Meeting (Ordinary) of the Session 1904–5, held Monday, 15th May 1905, at 8 p.m.—Present, Mr. John Belcher, A.R.A., *President*, in the Chair, 28 Fellows (including 9 members of the Council), 34 Associates, 1 Hon. Associate, and visitors: the Minutes of the Meeting held Monday, 1st May 1905 [p. 456], were taken as read and signed as correct.

The President announced that Mr. William Beddoe Rees, *Associate*, of 3 Dumfries Place, Cardiff, had been expelled by the Council from membership of the Institute, under the terms of By-laws 22 and 23.

The following candidates for membership, found by the Council to be eligible and qualified according to the Charter and By-laws, were recommended for election:—As FELLOWS (37): Stanley Davenport Adshead; Robert Frank Atkinson; Harry Beswick (Chester); John Priestley Briggs; George Thomas Brown (Sunderland); Roger Thomas Conder [*A.*] (*Soane Medallist* 1881) (Buenos Aires); Eustace Lauriston Conder (Buenos Aires); Hubert Christian Corlette [*A.*] (*Owen Jones Student* 1896, *Institute Essay Medallist* 1899); Alfred Cox; James Bow Dunn (Edinburgh); Robert Evans, Jun. (Nottingham); William John Gilliland, President of the Ulster Society of Architects (Belfast); Francis Thomas Wilberforce Goldsmith [*A.*]; Ernest John Gosling; Arthur Ernest Heazell (Nottingham); Osborn Cluse Hills [*A.*]; John Hudson [*A.*]; John Hunt [*A.*]; Allen Trevis Hussell [*A.*] (Ilfracombe); Richard Macdonald Lucas (Southampton); Frederick William Marks [*A.*]; James Henry Martindale (Carlisle); Glendinning Moxham (Swansea); Sir Charles Archibald Nicholson, Bart., M.A. Oxon. (*Tite Prizeman* 1893); Frederick William Peel [*A.*]; Joseph Craddock Perkin; William Pywell [*A.*]; Charles Henry Rew (Great Berkhamsted); Edwin James Sadgrove; Thomas Arthur Sladdin (Cape Town); Frank Adams Smith [*A.*]; Professor Ravenscroft Elsey Smith [*A.*] (*Greek Travelling Student* 1888); Harry Teather (Cardiff); Frederick Wallen [*A.*]; William Williamson (Kirkcaldy); William Woodward [*A.*]; Alfred Bowman Yeates [*A.*]. As ASSOCIATE: Charles Thomas Palmer (*Probationer* 1898, *Student* 1900, *Qualified* 1904). As HON. ASSOCIATES (2): Edwin Austin Abbey, R.A., LL.D., F.S.A. (Fairford); William Goscombe John, A.R.A., Membre Correspondant de l'Institut de France. As HON. CORRESPONDING MEMBERS (2) · Señor Don José Urioste y Velada (Madrid); Henri Paul Nénot, Architecte de la Sorbonne, Président de la Société Centrale des Architectes Français, Membre de l'Institut, Commandeur de la Légion d'Honneur (Paris).

A lecture on SCULPTURE IN ITS RELATION TO ARCHITECTURE was delivered by Mr. C. Stirling Lee, and a Paper on the same subject was read by Mr. W. Reynolds Stephens, whereupon a discussion ensued, and a vote of thanks was passed to the authors by acclamation and briefly acknowledged.

The proceedings then closed, and the Meeting separated at 10 p.m.

SCULPTURE IN ITS RELATION TO ARCHITECTURE.

By T. Stirling Lee and W. Reynolds-Stephens.

Delivered before the Royal Institute of British Architects, Monday, 15th May 1905.

I. By T. Stirling Lee.

FIRST of all, I would like to say how pleased I am to be here to-night, especially under your President, who has certainly done more than, or as much as, any architect to use the combination of sculpture and architecture in our country. Also, I think, your late President is to-night engaged with twenty sculptors criticising and arranging the sculpture for the Victoria and Albert Museum. So that I feel that since I was last here in 1901 the bonds between sculpture and architecture under your late and present Presidents have been wonderfully strengthened.

What is this craving we all have, both architects and sculptors, to express ourselves in figure? From the earliest times it has been used as a language on tombs and temples, and the great ideals of the whole world have been so expressed. Without sculpture on our buildings we should have lost the thoughts of the Egyptians, the Greeks, the Romans, the Florentines, and those of our own country. It is the writing of history; so the thoughts of our times can be written in the most durable language in the most open of all books, that of architecture. There it is in the streets for everybody to see and read. No sculptor who has any serious sculptural work to execute in connection with architecture can approach it except from the point of view that it is the highest and most useful sphere in which he can employ his art; for has he not to hand down to future ages the thoughts and ideals of his own age? And in this sense every sculptor needs to be a very deep thinker, and to present in his work the result of his observation of nature; for he has to observe very closely if he is going to use its symbols and its characteristics as his language, and faithfully express in his work the true environment in which he lives.

In the present day do we as a nation understand this figurative language? Do we, when we put sculpture on our public buildings, religious or civil, really grasp the fact that we are writing a language that is going to be read and understood by the world? Is the figurative and symbolic language a living thing to-day? I am afraid it is not. We can put all our thought and all our observation of nature into stone; but how many of the souls who go by will stop and read it? And yet it is primarily the function of sculpture in architecture to express great ideals—religious convictions, scientific discoveries, the attributes of good government, the virtues, the liberal arts and sciences: we take them all as our subjects. They are just as real to the sculptor of to-day as to the sculptor of antiquity. How real are they to the public? Of course one cannot help feeling that the reason of it is that in the old days people had no books and went about illustrating their thoughts by observing nature. Their touch with nature made the language of the sculptor intelligent to them. Since the introduction of printing we have lost it—there is no doubt about it—and thus, to a great extent, we have lost the reason of sculpture as a figurative language on our buildings.

There is also the æsthetic side. Here we come to a reason that must always exist as long as architects use ornament as part of their scheme of design. Figure is the highest form of ornament, the highest form of masonry; we have to grasp that fact, as I shall show later. The first principle governing sculpture associated with architecture is that it is carved masonry, and thus an essential part of the building. No doubt it is the great wish of all architects to use this highest form of decoration, the human figure. What are the first principles under which a sculptor begins to treat a work? Deep thought must be devoted to two essentials—its subject and its design; it must have its *raison d'être*—that is important for the sculptor alone: he never expects anybody to read it—but he must have his subject for his design. What is the architect's idea in that part of the building he has to carve; what lines has he to carry through; what proportion of light and shade has it to carry; what is the scale? I will illustrate these different points of view by one or two photographs, just to show what a sculptor has in mind when working in relation with architecture. What is the proportion of masses he requires? Let me take this photograph [fig. 1]. The sculptor finds he has to bring into the panel certain proportions. In this archaic work he is dividing it into three equal parts, the lines running down perpendicularly and equally dividing into parts; and so you often find that in a panel, if your building wants the lines to run through, you get the proportion of those parts into the panel which enables the eye to pass up and down the building in harmony and proportion, so helping the dignity of the building. Sometimes the building may want certain flowing lines; the panel is put in to carry one part of the building to another; it may be a carved cap down through the panel on to some other carved part. Then you use flowing lines to enable the eye to connect one part of the building with the other.

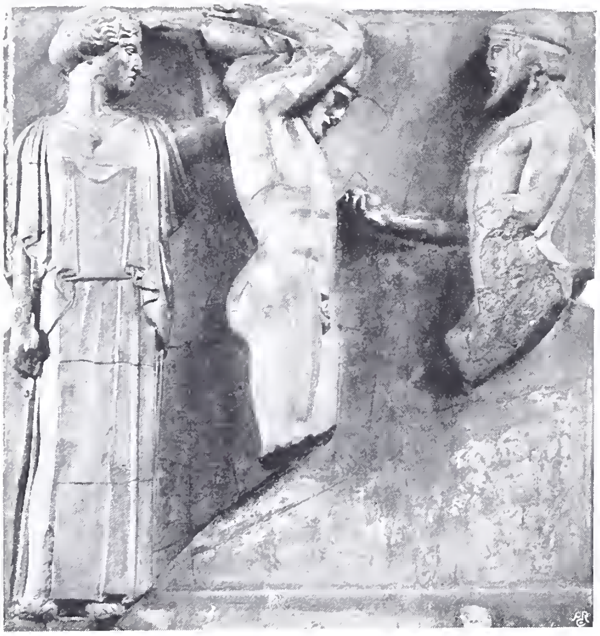

FIG. 1.

When you have your line and your proportion there are other problems to consider. Many I have found solved in the frieze of the Parthenon. There was one panel [fig. 2] that puzzled everybody. Why should one figure be deeper in its relief than any other, and that be the last panel but one in the frieze? Why should that figure with its arm up be in higher relief than the rest of the frieze? [fig. 2]. It was not until we placed those panels all together, and considered them in connection with the columns and the architecture, that we found out the reason why. It was simply the point of view of the composition of light and shade and line

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in order to carry along the whole frieze. When it comes nearly to the end the sculptor wants you to stop so that you go gradually down. Coming right along the frieze, you gradually follow that line along the horse and the man's legs until you come straight down the boy and the man—two perpendicular lines which run down the end of the building. So that you find that that is really a stop to let you down gradually. You see, that line and arm coming down with that light and shade acts as a stop, and then you come to the two straight boys down your column, and again you are carried up the building—so wonderfully has he thought out those lines that you should not stop but go back again. The end boy's foot there is raised, the leg is bent, your eye runs up that heel and up the leg of the horse, straight back again—it is just like a fine piece of perfect music, for the Greeks had only one art, one word for all the arts, *μουσική*, harmony. The Greeks understood that perfectly, and so that the line must flow back again the sculptor has raised the boy's foot just a little above that of the man; your eyes are carried up, and the whole thing is one beautiful flowing composition. That shows you how marvellous is the Greek idea of what line is in sculpture connected with architecture. I have not time to go on to the pediment to-night, but that is absolutely as perfect. Its line-composition is as thoroughly thought out in detail as exquisite as the heel of that boy.

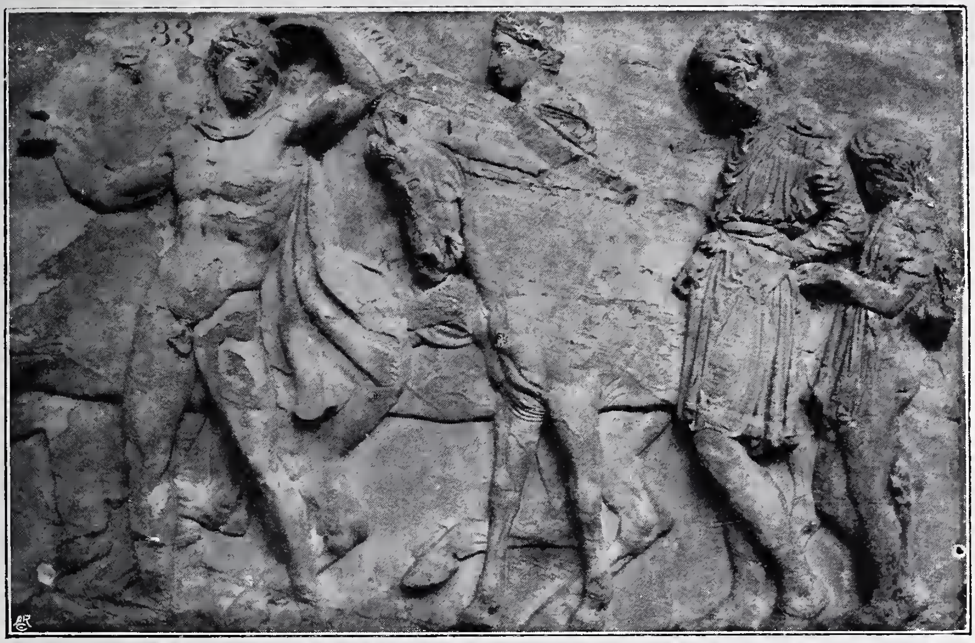

FIG. 2.

We come to beauty of light and shade in the Parthenon frieze. Now the chiaroscuro is governed entirely by the light and shade of the mouldings over the frieze, and you will find that the depth of that relief is governed entirely by the light and shade of the mouldings. It is worked from the surface plane; all the panels are within a plane keeping the surface; and so remarkable is the way the laws of optics have been studied, that if you take the angle from underneath the colonnade and look up at that frieze you will find that in the whole composition all planes are governed from that angle of sight. The sculptor, for

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instance, has placed the woman's leg coming right out of the middle of the body. Everything we see from a distance must be considered from the point of view in which it is to be seen.

Having our point of view of light and shade and line, we now come to the effect of what we might call the impressions. You say sometimes, "I want to get a certain effect; I want to get a certain scheme of light and shade; is it possible?" Now just to show you how the Greeks thought, and to illustrate those thoughts, I have brought you this pediment of the birth of Athene [figs. 3 and 4]. Here a man was going to illustrate the birth of a deity—the birth of wisdom. How is he going to do it? Wisdom is born with the sunrise. I am going to make the whole of that frieze from the light and shade point of view illustrate the light and shade of the day. He starts you with the rising of the sun; he goes through the full daylight, when the sun is at its meridian, until he comes to the twilight of the evening, and the way in which he has treated his drapery is from a blaze of light. A simple plain form here, you gradually come into more shadows at evening. The whole scheme of light and

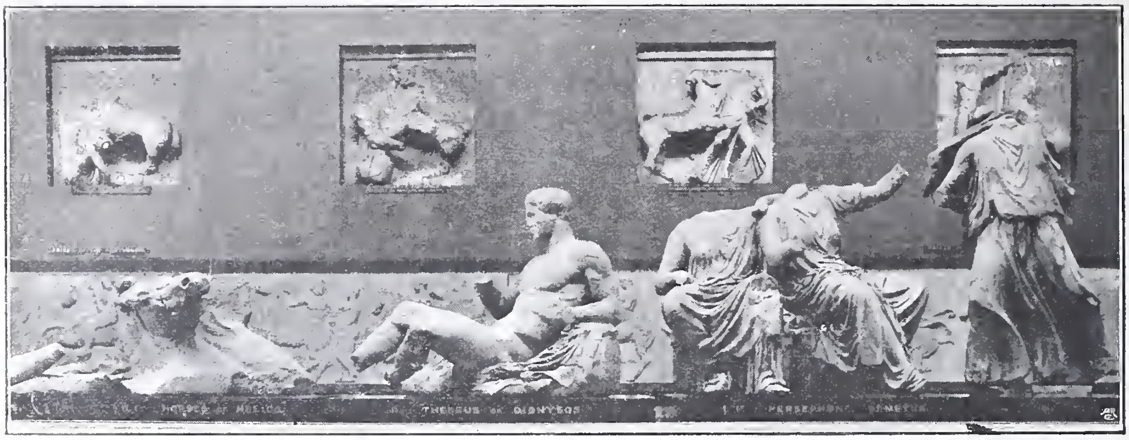

FIG. 3.

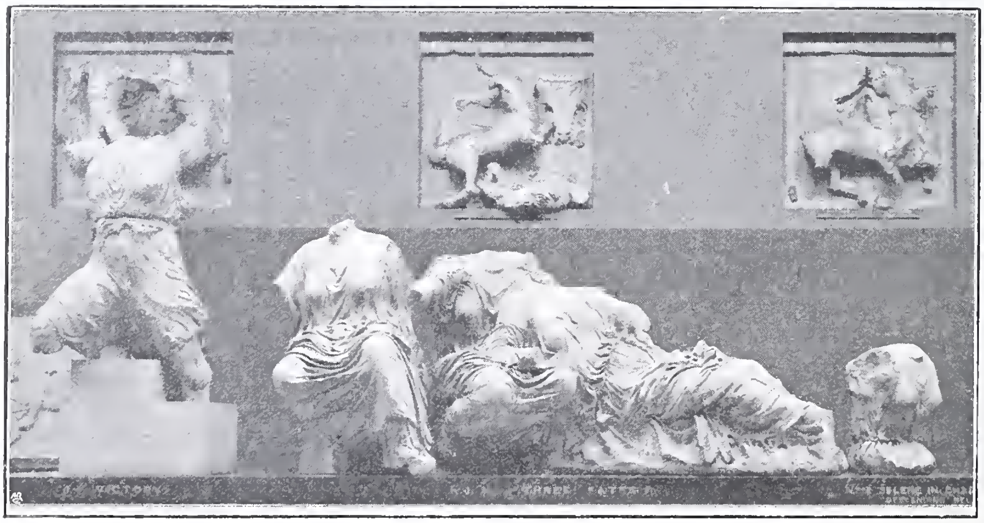

FIG. 4.

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shade is to illustrate the rising of the sun, the day, and the setting of the sun. We have it on record that some people came and said when it was in the studio, "Well, what have you done? The barbarians have been here and cut off his stomach." But he said, "No, you wait a bit, and you will see; wait until you see it in its place, and see it at the time of sunrise." It was put up, and as the sun rose it appeared in a perfect blaze of light, which was the idea of the sculptor. You see the beautiful drapery again, and how sculpture can illustrate light and shade—how the poetry of thought can enter into the treatment of the scheme.

Then, again, we come to the question, Can you get in one flat plane the effect of anything like perspective? This is curious. Sometimes you want an idea. The sculptor of the Parthenon wanted an idea—namely, that his deities should be seated in a semicircle. How was he to get in a semicircle the meeting of the deities? This was his thought. They were sitting on Mount Olympus, the gods in meeting; how was he to illustrate them sitting there? I think this is perfectly wonderful. If you have not noticed it, go to the British Museum and stand on the other side and look at those deities, and you will see how he has treated his chairs by cutting them in one plane [fig. 5]; the angle of those chairs is such that the deities gradually form a semicircle simply by the planes.

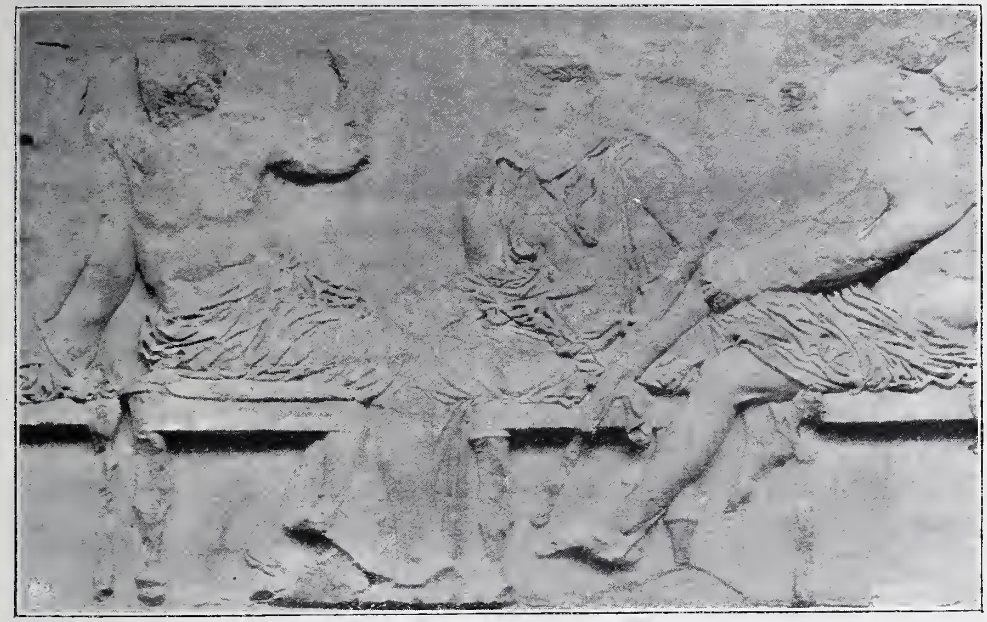

FIG. 5.

Again, what was the subject of the frieze; what was the central idea of the temple? It was the presentation of a peplos to Athene; and here, again, is curiously shown how impressionistic they were, and how wonderfully they tried to present their impressions. Here we have the presentation of the peplos to the deity. They were taking up the robe from the earth and bringing it to Athene, and presenting it to her among the gods, and the way in which the sculptor has represented it in this semicircle of the deities may be seen from this photo [fig. 6]. If you look for some time at the panel, it is all in one flat plane; but he has gradually diminished that figure; that figure is coming up, so to speak, from the earth into the presence of the deities and presenting the gift to Athene in Heaven. The idea of the

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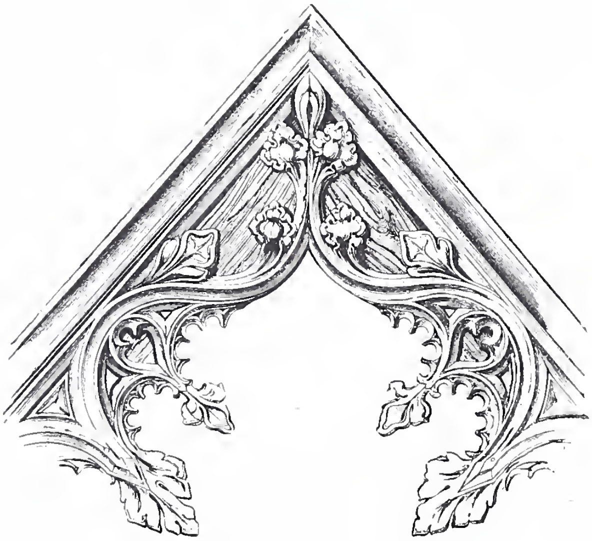
and the great elasticity of the style, render it peculiarly suitable for modern business requirements.

Among the most beautiful works of this style are the chantry chapels and tombs, which are full of the most varied and beautiful details. The measuring up and drawing out of these is quite an education in Perpendicular, as they are in most cases the work of experts in their profession, and constitute perfect miracles of art. I hope that young students who have heard me will be induced to study Perpendicular work perhaps more than they have done, and make measured drawings of such examples as they may come across. I would particularly impress upon them the advisability of getting mouldings and details, full size, on the spot. In wood tracery work the nosing can often be impressed on the paper with the finger, and the cusping and details filled in by hand. It is always advisable to measure with a view to making a finished drawing afterwards ; but where there is no time for this, at least one or two leading dimensions should be taken, as with a good sketch these prove very helpful ; for example, in a sketch of a window carefully made and in proportion, if one is only able to get the width of a light and the breadth of a mullion, it is much more useful for reference.



NOTE SUR DEUX ÉPURES ÉGYPTIENNES CONSERVÉES À EDFOU.

By Auguste Choisy [*Hon.Corr.M.*],

ROYAL GOLD MEDALLIST 1904.

Sur la terrasse du portique de la cour du temple d'Edfou (côté Est), on distingue deux épures que nous reproduisons [figs. 1 et 2]. Ces épures—à grandeur d'exécution—sont tracées sur des dalles de grès assez rugueuses, et devaient sans nul doute disparaître sous un enduit. Gravées avant l'application de l'enduit, elles sont à peu près contemporaines du gros œuvre, ce qui autorise à les dater de l'époque ptolémaïque. L'une d'elles [fig. 1] a été publiée en 1896 dans l' "Intermédiaire des Mathématiciens," par M. Bouriant. L'autre [fig. 2] est, croyons-nous, inédite et semble une variante de la première. On y aperçoit, aux points marqués par la lettre x, des signes distinctifs bizarres : sur l'une, un pied humain ; sur l'autre, deux.

Si l'on admet que les recoupements de lignes R et R′ sont des repères indiquant la position de l'axe, l'épure 1 donne une corolle à tige grêle ; l'autre, une corolle à tige épaisse. Et si l'on attribue aux deux variantes la même hauteur totale, soit 1^{m} 80, on obtient pour l'une la silhouette fig. 3, pour l'autre le contour fig. 4.

Que représentent ces deux tracés ? Généralement on les considère comme des études pour un profil de corniche en forme de gorge. Nous voyons à cette explication plus d'une difficulté : 1° L'indication très nette d'un socle massif, peu compatible avec l'idée d'une corniche. 2° La répétition [fig. 1] du profil en contre-partie à droite et à gauche d'un axe de symétrie. Que l'architecte ait disposé, à droite et à gauche de cet axe, deux tracés plus ou moins différents, cela peut à la rigueur se concevoir ; mais reproduire identiquement le même profil eût été un travail en pure perte. Sans nul doute l'épure 1 est celle d'une figure de révolution : nous sommes en présence d'un objet en forme de corolle, s'épanouissant au sommet d'une tige tronc-conique, et reposant sur un socle.

Le fût grêle est presque nécessairement métallique ; l'autre peut être de pierre. Quant à la matière de la corolle, l'absence de toute indication d'épaisseur donne à penser quelle était de métal. Le profil a de frappantes analogies avec celui d'une cuve découverte à Suse par M. de Morgan ; or la cuve susienne est faite de trois feuilles de métal appliquées l'une sur l'autre. Le détail de cette curieuse fabrication n'a pas, que nous sachions, encore été analysé de près : mais, à coup sûr, la technique susienne s'adapterait à la corolle d'Edfou. Ainsi il paraît fort admissible : 1° que la tige et la corolle étaient circulaires ; 2° que la corolle était de métal battu.

Quelle était la destination de cet élégant objet ? Par son aspect général il se rapproche beaucoup d'une table, d'un autel d'offrandes figuré dans la *Description de l'Egypte* (tom. ii.

your eye may run up and down. Here it is again in this one [fig. 8]; all these architectural lines are put in the sculpture so that the two may harmonise and bring the building together. Everything you do with architecture must have a proportion of the lines of the building in the sculpture if it is to harmonise.

Now, what is our position in England to-day? We have two classes of sculptors—one is the plastic and the other is the glyptic; one is a modeller and the other is a carver. The carver is the man who has served his time in the shop; he has had, like the mason, to knock off the rough stone; he goes to the schools and learns his form and goes on carving and putting his knowledge into his stone. He sees the thing from that point of view. The plastic sculptor goes to the schools and works in clay, and he gradually goes on putting his clay up and working his clay. He comes to do something in stone. What does he do? He hands it to the pointer, and it is handed to somebody else to carve. It is carved, and what is it when done? It is nothing else than the stone rendering of a clay figure. If you are to do anything with architecture at all, you must work from the other side, because the two sciences come together: first of all you have the anatomy of the modeller and you have the geometrical science governing the carver. The carver sees his nature from the outside; the modeller sees his nature from the inside; and if you want an illustration of the two methods, go and look at Michelangelo and Pheidias. Pheidias was a carver. Although Michelangelo was a carver, yet he worked from the anatomical science. If you look at these two figures of Theseus and the Medici and put them side by side, you will see what I mean; the one was governed by anatomical and the other by geometrical science. There are the two points of view, and if you are to do anything with architecture at all, it must be, as I have said, from the outside—the geometrical side. There are two schools, and if you want evidence, put a modeller on to a building. You will find the work full of black and white holes; there will be no surface plane in it; he cannot understand it. But directly you put a carver on the stone, he will not take off more than he can help, and he will block in the work from the outside and gradually put in what form is necessary and leave it, and then it is a part of the building.

So we come to this one point which is very serious to us in England; we have very few carvers, and the few carvers we have are doing less and less of their own work. I am speaking quite plainly of my own art now; and if I have any view at all, it is that sculpture is an individual art: it is as much an individual art as painting, and that man who touches a piece of stone in a building has to put his own individuality into it; and if he does that he must succeed. He knows he has to do his work if he possibly can *in situ*, because he is governed by the whole surroundings: his mind is filled with the one idea, that his work is to be part of the building, not the mere erection of a modelled figure. You may say that it takes too long; but that is not so. A man who understands carving will get his design; having thought it out he may get a sketch made, and then he may get the rough taken off from that sketch; sometimes he will go and draw it on the stone and then put his own work on it. If he does that under all the circumstances he will do it much quicker than a man who will model it, point it, and carve it by somebody else. What I do feel is that if we are ever to do anything in relation with architecture again we must come back to the first principle, and that is that sculptors and architects must work together; the thing must be designed, and the sculptor must be a carver, and have the one idea that he is to enrich the architecture, not to spoil it.

II. By W. Reynolds-Stephens.

I FIND, when I think of architectural sculpture, that for me it naturally falls under either of two heads. First, *Constructional Sculpture*, or that which is formed out of a piece of the structural material of the building, which actual piece has to perform its original office as weight-bearer or receiver of a thrust, such as columns, caps of columns, keystones, corbels, brackets, and the like. Secondly, *Applied or Superficial Sculpture*, under which heading I place niche-figures, the filling-in of spaces such as spandrils, panels and friezes; also mere surface work upon walls and other structural features.

In both classes fitness for its purpose should be the greatest quality in the sculpture, and under this quality of fitness beauty stands supreme; for unless the sculpture adds beauty to the building as a whole, it has no logical reason for existence nowadays. The time when its chief office, perhaps, was to record history is of the far past.

In constructional sculpture an absolutely essential requirement is, that it not only aids but also appeals to the eye and brain as aiding the building material of which it is formed to do its work, be that work support or resistance; yet how frequently one sees a *feeling* of weakness owing to unfortunate selection of lines and masses, even if an actually serious weakening of the material is not there.

Yet we have such magnificent examples of the past to refer to, amongst others the wondrous Caryatides of the Erechtheion. Every line of those figures and their draperies being designed to aid the impression of carrying, the choice of type, with such a build of neck, the restraint from all suggestion of movement, the figures stand there as if they could never know fatigue, and yet as if they realise that an important duty has been imposed upon them. But then these figures have not been overloaded with work by the architect, for the mass they had to carry would satisfy the eye as of a reasonable bulk. How different are the couple of crouching figures one frequently sees nowadays struggling under a load of thirty feet or more of bay window, a terrible selection of the unfit!

Another example of the great past, which has always given me the greatest satisfaction as constructive sculpture in conjunction with architecture, is the winged Assyrian bull which formed decorative bases of piers of some huge doorway into an Assyrian king's palace at Persepolis. Not only is the stone left frankly between the legs, but the very pose of those beasts is selected to give the greatest feeling of carrying strength: not a suggestion of bend in a leg; each is rigid and firmly planted upon the ground; and the great wings folded back tightly against the pier on either side create the impression that they are there to hold the wall safe from lateral movement.

The great lessons to be learned from a thoughtful analysis of the works of the past, their mistakes as well as their successes, must result in the appreciation of certain laws which should guide us in our present work. Nobody deprecates more than I the all-too-frequent imitation of those old works, or a conglomeration of them, in the architectural sculpture of to-day; but such laws of fitness as they have established beyond question should be adopted; whilst the thought and feeling in our sculpture should be *entirely* of our own times; that is the only way to have living sculpture—generally it is merely the resuscitation of dead bones which is introduced on buildings.

I should much like to know what you architects think of a matter which has always worried me in certain examples by that very great master Michelangelo. Is his treatment of the four lying figures on the tombs of Lorenzo and Giuliano de' Medici justifiable? In me they have always created the impression that the whole block of white marble, of which each figure is carved, is slipping off the architectural base sideways.

Speaking of Michelangelo, I think that his habit of leaving parts of his work merging into the stone (if it was not that he had got tired of that particular work, and put it on one side, and so left it unfinished) was the outcome of his long practice of working in conjunction with architecture; and for architectural sculpture, when it is structural, it has considerable value. I saw a treatment of this kind in the caps or bracket heads in a church at Cullompton a week or two ago which pleased me very much: the head-dresses were merged into the stone of the shafts of the columns, and the impression of the weight being thus carried down was very agreeable compared with the usual more detached head.

But when we see this mannerism being deliberately introduced meaninglessly into sculpture which is intended for no architectural purpose, but to be placed in a gallery or drawing-room, as an eminent foreigner does it, to me it is merely an affectation; and if this phase grows (as from its ease and saving of labour appears likely), one pictures the room of the future collector as being rather like the crypt of some cathedral, where they treasure sculptured scraps off the building.

Another fault of the past which I think we ought to avoid is where the pose or placing of the figures shows no appreciation of the laws of gravity. In our pictures we have long abandoned the faults of the workers who understood nothing of perspective, yet in architectural sculpture one sees figure after figure acting as bracket corbels and the like, reaching out and pretending to carry a mass of material, when in truth the material really carries them, to say nothing of the falseness of the impression upon the mind. In avoidance of this mistake, as far as I know his work, Alfred Stevens was most happy: he obtained a great richness of light and shade, and yet he obeyed the limitation of the possible in posing his figures; if a figure projects beyond the possible regarding gravity, there was sure to be another figure behind it counterbalancing that movement and holding back the projecting one. Also when he employs crouching figures to do carrying (as in the Dorchester House mantelpiece), the load carried is reasonable in bulk, and the weight is shared by some structural architecture; then, also, the figures have straight backs, and the feet on which the figures rest are posed as weight-bearers. Of course his inclination is for curling line rather than for the vertical lines of the severer schools, but in their fitness they are very fine.

As to my second heading, *Applied or Superficial Sculpture*, where it is merely surface ornament upon walls and other structural parts, I feel the most fit work is that which is incised, the retention of the surface of the wall being recognised as a necessary character in the treatment. What magnificent wall surface decorations were those Assyrian bas-reliefs of the lion hunts of Assur-bani-pal. The best of them are the finest things of their kind in the world, as far as I can learn; yet, full of interest as they are, one never loses the feeling of the flatness of the wall upon which they were executed. I would ask you to note the minuteness to which the details of ornament are carried, especially in the horse trappings, yet in so masterly a manner that they in no way detract from the breadth of treatment of the whole. Alas! how often nowadays emptiness is mistaken for breadth by sculptors.

Before leaving outside work, I venture to remark and regret the large amount of money spent on sculpture which is wasted owing to the placing of it at a height apparently without regard to the neighbouring houses and width of the streets. In the architectural perspectives, with all surroundings removed, and drawn from an impossible point of view, the sculpture may look rightly placed and reasonable; but when all becomes hard fact, how often the sculpture is only to be seen properly from the attic windows of opposite houses.

I suppose the Greeks set the fashion for friezes, but I believe in their use of it the buildings were almost always longer than they were high, which is seldom the case in our cities now owing to the great value of land; then those Greek buildings could usually be seen from some distance, and a scale of figure work and a projection of relief which they adopted, and which told well in their strong sunshine and clear atmosphere, are not of necessity suitable here under such very different conditions.

I was about to refer to a definite case of this misuse of sculpture in a new building in the Strand, but perhaps it is better rather to refer to an example (a building which you probably mostly know) in which I feel a really fit modern way of treating a building with sculpture is employed. I refer to Colney Chapel, at All Saints Convent, St. Albans, by Mr. Leonard Stokes, where the money available for sculpture has been rightly concentrated upon a long band of rich work just over the main doorway, and three niche figures a few feet higher, and all needless ornament avoided. This is the sort of site which would inspire almost any sculptor to do his very best, and I think Mr. Wilson in his sympathetic work has not wasted his chances, with the result that the sculpture really adds a beauty to the building as a whole.

I think many of our British architects are to be congratulated on their appreciation of the necessity to protect outside sculpture somewhat from stress of weather; it is most essential, especially where it is much cut up and likely to give lodgment for water.* Much modern French work is quite wrongly treated in this respect, one sees carving with very high projection, without so much as a coping or moulding over it; indeed, the architects seem to select the sky-line and the most exposed parts of walls to decorate with carving, be it figure or ornament. I refer to this, as one sees buildings cropping up in London from time to time in which French influence is apparent, and I feel, although we should always be ready to welcome any good influence, we should look very carefully and critically into things and make sure they *are* good; and if we find them wanting, hoist the danger signal. We gratefully acknowledge a mass of good influence we have received from our French brothers-in-art, but it is no compliment to them to receive everything without question.

This matter of weather and water and frost is one which I think is all too frequently quite lost sight of by some sculptors, and the recognition of it should be more insisted upon by architects when using stone carving.

This is one of the things the old mediæval sculptors understood usually so well, and the great use they made of vertical lines is to my mind in great measure the outcome of this necessity; it was not only an eye for beauty that dictated those lines, but practical requirements as well, with the invariable result that the added fitness for their purpose meant added beauty as well. In cases where this was not sufficiently observed much of the damage owing to disintegration of the stone is due. I have noticed that where an arm is bent across the chest—which thus forms a ledge for water—the hand is placed rather higher than the elbow, and the elbow itself is detached slightly from the side to form an opening for the escape of the water, with the result that the figures designed by such knowing craftsmen usually have outlived the others.

Before referring to exclusively interior work I will speak of *treatment of material* which affects both outside and inside work. I believe one of the great defects of our British school of sculpture is the quite secondary place given to the consideration of the treatment of the material in which the work is to be finally produced. The designing and modelling are in most cases the only things seriously considered. The great craving for mere realism has brought about almost a blindness to this important factor, material. Great slickness of handling the clay appears to be all-absorbing, without sufficient regard to the fact that the clay is only a passing stage in the work; so deep set is this that a highly skilful life study which is the result of patient and faithful reproduction of a model is lauded up on all sides as great art, the peculiarities of the model being accepted in lieu of the character of the sculptor, and the absence of both poetry and invention of design is not felt. Of course when a sculptor is producing an ideal work in which the embodiment of some fine idea is his "be-all and end-all," then if an impression of great realism in a face, figure, or any other part will make the working out of his invention more convincing, undoubtedly the treatment of material may be considered of less moment; but even then a really fine artist will not overstep the limits of the material in which he is working. When sculpture is applied to architecture, and more especially when it is for structural parts, then I feel the material and its proper treatment are all-important. In our school training this matter is practically ignored, and I think you architects can render a very real service to British sculpture by emphasising the necessity for a better consideration of treatment of material when you require work of sculptors.

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* Although in properly designed sculpture this risk should be reduced to a minimum.

As to interior work, it is wiser that figures never be used on ceilings; one can conceive grotesque figures and mannikins clutching round some pendulous structural knobs, looking and being fit. Alfred Stevens managed to introduce some cherubs' heads and wings satisfactorily on the soffit of an arch by showing them looking down through a panel frame, and as only parts of the wing show, it gives the impression that the rest of the cherub is safely on the upper side, and no fall likely to occur. But the use of figures as one often sees them springing from a cornice and stretching well into the curve or flat of the ceiling, without any regard to the laws of gravity, is to me an absolutely unfit use of sculpture. I have almost as strong an objection to human figures even in panels on ceilings, whether painting or sculpture; for besides the figures looking very insecure and out of place, the beholder is certainly most uncomfortable: the human figure is bound to assert itself, and call for attention from the living beings below—with neck-ache to the latter as a result. Further, the chances are that the living being has to dodge about the room before finding the one place from which the ceiling figures appear right way up. No, I maintain, all things considered, figure-work on ceilings is a mistake; there is ample scope for introducing them, if required, on the frieze, doorways, and especially chimney-pieces.

Nothing stands more fitly as motif for ceiling decoration than tree forms with their leafage and flowers: the very construction of stems and branches especially adapts tree forms for such a use; but even then, unless the stems are powerful, I think that the introduction of ties to the ceiling is most satisfying to the eye. How many of us admire the old plaster ceilings, the ornament on which is almost merged into the ceiling owing to the great number of coats of whitewash they have received. I wonder if there is a logical reason for feeling them to be so fit—the lost and found quality obtained by the merging conveying to the mind an assurance of security for the ornament. Anyway, a strongly undercut ornament gives the opposite impression.

I should like to say a few words on the question of proper lighting of sculpture which is used inside buildings. One sometimes sees sculpture in places where little or no light reaches it, or from an entirely unsuitable direction. I do not for one moment suggest that undue consideration should be given to the sculpture, but as "fitness for purpose" is one of the highest qualities in all architectural design, then I do say that unless the sculpture you are thinking of using will be properly lit, it cannot be the right place to use it—and on the great principle of fitness, better leave it out if you have no adequate place.

In private rooms a great field (of which little or no use is made nowadays) for the proper use of sculpture is the chimney-piece, especially for bas-relief, when the fireplace is on a wall sideways to the source of light. I would suggest this for your most serious consideration.

But there is one place where sculpture is much used, and I think in most cases it is maltreated—I refer to the decoration of altars in Christian churches placed immediately under powerful east windows. I deliberately say that the sculpture is maltreated rather than misplaced, because I think few would question that the altar is undoubtedly the site above all others for placing the most precious decoration. Now, if the extreme east end of the church has been established as the most fit place for the altar, then undoubtedly the fault lies with the east window. At one time I believed that there was a strongly established symbolism of "Hope of Resurrection" in the east window, but I find that this is not widespread, and certainly if any such symbolism existed it has been mostly lost sight of, for the majority of east windows are filled with pictorial glass illustrating a hundred-and-one subjects rather than that of the Resurrection. Then in the oldest Christian churches and in many abroad now no east windows, or only quite small ones, are introduced; and I therefore think, on the ground of more properly lighting the altar, which should have chief consideration in our churches, it would be a more fit and consequently more artistic treatment to obtain the light from the side-walls—from one side more than the other—and by this means also the choir could be adequately provided with light, especially if these windows are kept free from all dark or painted glass.

I remember how disappointed all concerned were when Henry Bates executed for Holy Trinity, Sloane Street, at J. D. Sedding's request, the large white marble altar frontal—an entombment, a very beautiful work of art in itself—which owing to unfit lighting, although very high in relief, looked from the main body of the church like a sheet of paper. And yet here were two fine artists, architect and sculptor, but both failed to appreciate the competition of the large east window. Since dark *painted* glass has been put in the window, and the light from it further lessened by high buildings to the east of the church, the marble frontal tells better; but I understand that when an important service is to be celebrated the clergy cover it with a richly coloured hanging—a manifest showing of failure to comply with the requirements of purpose, and a mistaken selection of material, chiefly owing to wrong direction of light.

On the English mediæval tombs our sculptors showed the keenest appreciation of architectural treatment in their work; the simplicity of line and the dignity of pose in those recumbent effigies are very remarkable (excepting perhaps the few which rest on their side), and they take a high place amongst architectural sculptures. Regarding them it is to me a ground for rejoicing that the colour with which they were evidently mostly, if not all, decorated at one time, has in great part perished, because, judging from such colour as I have found remaining, it is evident that in that quality—colour I mean—they must have been very gaudy and very cut up, and nothing like so fine in that as in their sculptural quality.

How badly those painted tombs must have compared in colour with the ones which relied upon a beautiful variety of real materials, some few of which yet remain, with their refined admixture of metals, enamels, gilding, and the like, which the hand of Time has beautified, and not, as in other cases, obliterated. I do not suggest that we should again use colour so freely as it was applied to sculpture in the great past: the gain of leaving material such as stone in constructional sculpture, to give its own impression of material strength, should prevent us again resorting to colouring such work; but a judicious use of mixture of materials for inside sculpture can be a great added beauty if fitly used.

Gentlemen, nowadays the average standard of the sculpture applied to buildings is not up to the quality of the architecture (there are some brilliant exceptions, I know, but generally it is so), and I feel this is chiefly because the sculptors want treating with more confidence and less as machines. The money paid is usually insufficient to provide thoughtful work, yet the total amount spent upon sculpture and ornament upon many buildings is ample to provide such building with a few parts thoroughly well decorated with good quality sculpture—as great a gain to the building as to the sculptor !

From some of you, I know, sculptors receive all sympathy, but not from the majority. Go to individual sculptors. First, set down, as fixedly as you like, conditions which it is just and right that you should impose ; explain fully the site for the work and the surrounding materials ; state the approximate scale of figures or ornament ; state any direction of line you wish emphasised—the flatness or height of projections. Give subject you wish illustrated. Emphasise that you require a true recognition of use of material and provision against weather (if outside), and the like. State somewhat as to money available, and then let the sculptor make a small design model for you to see, and after that give him a freer hand than now, and the chance and credit to be the designer of the work ; and as a result you will get the very best out of him, instead of, as now, most sculptors looking upon their architectural sculpture as pot-boilers and keeping their best intellectual qualities for their other work.

With you rests the responsibility of making or marring the modern school of British architectural sculpture. You may not, probably will not, get just what you have pictured in your minds, but you will get living work with individual character, and I venture to think that a living donkey is more beautiful and fit than a dead child.

Think of the sculpture on the west front of Wells—figures evidently executed by a good many different sculptors. Did the architect get just what he expected ? He probably specified for sets of a given size ; yet some are about 6 feet, some 7 feet, and some 7 ft. 6 in. for the same sized niches. Yet is the artistic result of the whole front of the cathedral damaged by this variation ? Is not the gain of the living character of sculptor a greater gain than the ill-fit a loss ?

Gentlemen, I may be wrong in much I have said, and certainly am so in the way I have put it down ; but I am out of my element when writing, so I hope you will accept my remarks in the spirit in which I have intended them—as the frank expression of opinion of a very serious student of a great art.

DISCUSSION.

The President, Mr. John Belcher, A.R.A., in the Chair.

Sir JOHN TAYLOR, K.C.B. [*F.*], in proposing a vote of thanks for the lectures, said that although the subject of the co-operation of the sculptor and architect had been brought before the Institute on several occasions the matter had never been put more strongly before them than it had that evening. To his mind nothing could be of greater importance than that the architect and the sculptor should co-operate in the preparation of the design. It was no use whatever to have an architectural design prepared and then afterwards to have to fill in the portions which required sculpture. The speaker called to mind an instance where niches had been provided for sculptured figures ; and because there had been no co-operation between the sculptor and the architect, when the figures arrived it was found that they were much too large for the niches, and could not even be got in.

Professor BERESFORD PITE [*F.*] said he thought it an honour to be asked to second the vote of thanks to Mr. Stirling Lee and Mr. Reynolds-Stephens for coming there that evening and speaking so earnestly and heartily on what they all recognised to be a very important subject.

It was important to sculptors, and without any doubt it was important to architects. Of its importance to architects he was afraid they were not so seriously convinced as they might be. Of its importance to sculptors he would go a little further and say he was sure they are not sufficiently convinced. What he said with regard to architects might be illustrated by a point drawn from Mr. Lee's exordium. An architect had a building on which he put sculpture; did he ever trouble himself about what that sculpture meant? He doubted it. The architect was not really serious about it. He wanted so much ornament, and therefore he used sculpture. In some cases he wanted the ornament to cover laches in his design, and the unfortunate sculptor had to do the best he could to make the best of a bad architectural design. At all events the sculptor and the architect lacked the inspiration necessary to its effective birth, and the result was that any putty model could be translated into masonry and provide the architect with the flowing line, or the broken surface, or the tumbled outline which the quality of his architecture desiderated. To his mind few things were more deplorable than the utter weakness that modern sculptors showed in appreciating architectural design when it came into direct and physical contact with figure work. He did not know that they were demanding the impossible either from the architect or from the sculptor, but he was afraid they were going to the wrong school to learn if they took their architecture from the Parthenon, because no Parthenons were built nowadays. The sculptor, too, was going to the wrong school to learn if he thought he would have the opportunity of doing his carving upon the face of the building, and expecting the architect to provide in the contract that the builder's plant should remain on the job till the carving was completed. That was the practical issue of the matter. They would have to come away from the Parthenon with its inspirations directly, and would have to find out by contact with the material some ideal, through the means of modelling clay if necessary; he believed Mr. Burges used actually to cut his models in bar soap and string the bars together with hairpins to make the curved forms. Burges said that he found the exercise or practice of cutting was more helpful in the production of ornament than the exercise of modelling in clay, and he gave vent to his picturesque genius in that way. There was only one remedy for the fault he had ventured to suggest which lay equally with architects and sculptors, and that was effective study, which would take the sculptor right to the roots of sympathy with architectural design, and the architect to those elements of sculptural design which Mr. Lee had so eloquently indicated to them. They would find the era that corresponded with their own, and the era therefore in which we might find practical lessons, lay not in the distant days of Pheidias, but actually in the Renaissance. They were to all intents and purposes men of the Renaissance just now; they might be trying to purify the Renaissance of its still finding an inspiration in the Roman antiquities of Italy; but they were, for all that, as much Renaissance men, whether they descended to Gothic or not, as were Michelangelo and the men who preceded him. Whether they explored in Byzantine or in Gothic mines, they melted their discoveries according to the heat of their own imagination, to recast them in the moulds of modern requirement. Do what they would, they could not escape from the necessities of the day in which their lot was recast; and when they looked at the Renaissance—to the work and days of Benvenuto Cellini and to the work of Michelangelo—they found a condition of glorious harmony between their view of architecture and their view of sculpture; they found the same elementary grasp of the conditions of design in both arts. They found that Michelangelo, for instance, did his mouldings, not for the sake of their archæological and antiquarian perfection and correctness, but absolutely for the sake of their profiles—for the sake of their light and shade. If Michelangelo got hold of an old moulding he tinctured and invented from it. He took a classical cornice and tilted its face and regrouped its mouldings and put his own original feeling into its design, out of pure interest in it; but in doing so he was not at all impelled by its antiquarian character. He (the speaker) had the idea that Michelangelo treated his figures in exactly the same way. He grouped them and piled them and applied them to the architecture under very much the same conditions of thought as those in which he took his mouldings and carvings round the room, bringing forward the backs of his panels and giving recess and thickness by niches and window recesses simply used as so much artistic material to achieve an artistic result. In much the same way Michelangelo used the figures in those extraordinary sarcophagi in the Medici Chapel. The sarcophagus was an unbroken curve, supported underneath by several retreating lines with a very flat ornament; not only that, the brackets on which it rested had a stiff form worthy of steel design, and above the figures expressed that indescribable freedom—the freedom from the laws of gravity which was partly the secret of their success. Now if they could go back and look at their architectural methods and forms as a sculptor would, and if a sculptor were to go back and look at his work as an architect would, they would possibly get a man—and they had one, too, in their own time—who could have done what the Renaissance men had done before. He (the speaker) did not know very much—Mr. Stannus could probably tell them more—about the early life and training of Alfred Stevens, but the extraordinary success of his architectural treatment of sculpture and his sculpturesque treatment of architecture was to be imputed to that long term of years in which he toiled up and down Italy and painted the portraits of innkeepers in order to get the price of his daily board at the inns. It was in those years of study and home in Italy that he felt his way into the really eminent architectural qualities of the sculptor's work, and *vice versâ*. He fancied, too, that Mr. Alfred Gilbert owed a great deal of his success in the same way to his early years of patient study in Italy. His own view of the present condition of things was somewhat pessimistic; but he hoped a new race of sculptors would come who would feel that architecture was a living art, and that they were not dependent on architects for it, and that architects would in the same way feel their way to a position in sculpturesque design without feeling that they were dependent wholly on sculptors for it. Let the combination of sculptor and architect come rather in one person than in the dinner-table friendship of distinguished sculptors and would-be distinguished architects. They had instances at home of some most charming work of the definitely architectural character of the Renaissance. Architectural students should not forget the tomb of the Countess of Richmond in Westminster Abbey. It was a figure very well known to sculptors. The extraordinary realism of the fingers was pointed out to almost every visitor. Look at the base of that tomb, and at the design of the lower part of the other tomb of Henry VII. in his chapel. How admirably true that part of the architecture was, and how beautiful the sculpture was to those who knew little or nothing about it. Could it not be said that treating the subject quite generally the tendency of the Greek employment of sculpture was to employ it in framed friezes, or in architecturally formed panels? In that way the architect took supervision of the sculpture by setting it and framing it. When they came to Gothic times the architecture was applied and the figures stood upon the columns; they had an independent existence. Their expression was allied to the building most closely in design by the limitations of the sculptor's art, and by the limitations of the sculptor's knowledge of the time, but the figures were more particularly detached, and when they came to the Renaissance the sculpturesque forms were melted in with the architecture to produce a flowing outline combined with mouldings; or coming down to their own times they got to that idea with which he started, that the architect uses the sculptor to save him very often from unfortunate mixtures of architectural forms. Might he express the private opinion that the sculpture of the Home and Colonial Office was worthy of very careful attention and study? It had always seemed to him to be one of the most successful expressions of fresh and living sculpture. He fancied that what their sculptor friends had been expressing to them that evening as to the value of planes, and as to the value of the constructive feeling entering into the buildings, could be very well instanced by a reference to that most interesting and successful building.

Mr. HUGH STANNUS, A.R.C.A. [*F.*], said he regretted he had not had the opportunity of seeing the Papers beforehand. Had he done so he would have put his thoughts in a form that would have been more worthy of the subject and of the attention of his colleagues. It had always appeared to him that Sculpture had been applied to Architecture for one of two ends. Firstly (and that, he believed, was the first reason of its existence) to tell a story, and secondly to make a building finer, that is to say, to make it more decorous or to decorate it. He had dealt with the former branch of the subject—*telling the story*—in a Lecture he had the honour of giving before the Society of Arts; and he had to coin a word for the subject. He then said that "Storiation" was that branch of applied art which governed (1) The Selection, and (2) the Representation, of Meaning in the decorating of Buildings and other objects. Thus we storiate a building; and our Storiation tells the story (to those who come after us) of our history and our aspirations. He had put what he thought on this subject into that lecture, which had been since published in a little Pamphlet, of which he believed there was a copy in the Library. He would therefore now occupy their attention with only the latter intention of the Artist (be he Architect, Sculptor, or Painter)—*i.e. the beautifying the building*—and, in this latter division of the subject, which came under the general branch of Æsthetics, he thought that he ought to express his admiration of the manner in which the President had utilised the Sister-art, of Sculpture, in the beautiful building lately raised in the City, which was the scene of so enjoyable a function a short time ago. Referring to the first Paper, he ventured to ask Mr. Stirling Lee to reconsider his approval of the vertical lines of composition in the Metope from the Temple of Zeus at Olumpieia. This represents Herakles, assisted by a Hesperid, supporting the world while Atlas brings the Apples. The subject necessitates three figures in vertical attitudes, undoubtedly; and Mr. Stirling Lee appeared to consider that these three figures, by their verticality, sympathise with the vertical grooves of the intervening Triglyphs. Had this verticality in the Metopai been intended, as a governing motive of Composition, we would find more of them governed by the same lines; but it was merely incidental. We should bear in mind that these metopai were pre-Pheidian; and that the whole Temple was somewhat archaic. Had Pheidias designed this particular panel, we might rest assured that he would have contrived, by means of drapery or foliage, to connect the figures and subdue the verticality of effect. In studying the composition of the figures in the Metopai of the Parthenon, we observe that the lines are occasionally horizontal, but much more frequently *oblique* (and very seldom vertical); so that the *oblique* lines and *full* relief of the Metopai give and receive beauty of Contrast from the *vertical* lines and *low* relief of the Triglyphs. He observed that Mr. Reynolds-Stephens made an interesting and important distinction between those figures which were portions of the Storiation of a building and those figures which served in a constructive function. The male supporting-figure was termed a Telamon or an Atlantid, from a Greek word which signified *to bear*; the female supporting figure was termed a Korē (*pl.* Korai), from a Greek word which signified *a girl.* The squared wooden Post, usually tapered, *i.e.* diminished downwards, to facilitate its being driven into the ground, which was used in marking the limits of land, was often carved with a head of Hermes the tutelary god of fields; and was thence known as a Hermes or Herm (Latin Terminus, and thence also known as a Terminal, whence Therme in French). In regard to all of these supporting figures, he would suggest that they state the point more strongly; and, bearing in mind that no human being would ever be used or submit to be used in such a function, they ought to see to it that figures which are used *as Supports* should be somewhat *less than human.* This might be done in either of two manners: firstly, by not representing the whole figure, but merely the upper part of the body, say as far down as the umbilicus (the remainder being enclosed or jointed to a Herm); or by omitting the arms (as Jean Goujon did in his well-known "Cariatids" in the Louvre Museum at Paris)—or secondly, by modifying the sectional plan of the cranium so that it might accord with the squareness-in-plan of the superincumbent Architrave—and, in all cases, an Abakos above the cranium, and a Pedestal below the feet should form an integral portion of the design. Occasionally the figure was represented as supporting on the Shoulder instead of on the Head; but very few of these experiments could be considered as even approximately successful. Another caution, to be attended to, is that these figures should be generalised, and not individualised as Portraits. In Pall Mall there is a pair of figures supporting a small·porch. They are treated like the ordinary Herm; but, if they had been carved as portraits of military commanders, they would be felt to be degrading and unsuitable. The Prototype, of supporting-figures, was tracible back to the Osirid figures round the courts at Abydos, Medînet Habu, &c.; but the Egyptians had too much respect for Osiris to use his statue as a support. In their temples, each Osirid was *standing in front of* the Pier which was doing the work; *i.e.* it was symbolical for Adoration, and not constructional as an Atlantid. He would be glad to add his word of thanks to both of the able gentlemen who had spoken to them that evening. To Mr. Stirling Lee for his eloquent and illuminating remarks and the bursts of genius with which he searched out the working of the Greek mind on the Parthenon sculptures. While Mr. Lee was speaking, his mind reverted to the fine series of Reliefs with which he had enriched the St. George's Hall at Liverpool. And also to Mr. Reynolds-Stephens for the scholarly and academic treatment of the subject from his point of view. These two papers showed the collateral views that might be taken; and it was a happy idea when, some years ago, this method—of inviting two or three masters in any branch of our art to treat of it on the same evening—was adopted. They had now enjoyed the benefit of several evenings on Sculpture; and the question arose in his mind, whether they might not have the results codified into a Handbook on the subject.

The PRESIDENT said he felt bound to say that the sister arts of sculpture and architecture had drifted apart, and that architects were somewhat to blame in the matter. He trusted that in the future the arts would be brought closer together, and that architects and sculptors would work together. They must not forget that they were sister arts, and architects must not allow sculpture to be used improperly, or to serve merely in ignominious positions such as terminals or weights to the top of buttresses. It was on that account that the arts had drifted apart, and that the sculptor had drawn back from architecture, and seemed a little afraid of it. He remembered a sculptor saying to him once in speaking of his pedestal, "I do not want any architecture in it, because it will detract from the figure; I prefer to place it on a rough-hewn block." Just as architects were beginning to learn the use and advantage of sculpture in relation to buildings, so he hoped that sculptors would learn that architecture could be a great aid to sculptors. It was true that in the case of buildings the architect must take the lead, and the sculptor must support him; but in the case of a monument, or where there was a group of figures, then the architect should be called in to help the sculptor by making a shrine for his work—an architectural setting to the sculptured jewel. As Mr. Stirling Lee remarked, sculpture had a special mission: it endeavoured to tell a story or to give some illustration or information regarding its purpose. Buildings also had a tale to tell, and a message to deliver, which could be clearly read by all; and architects asked the sculptor to come in and help them in this expression of the building—to say in a much more eloquent way, in fact, the purpose and meaning of the building. His views on this subject were pretty well known, but he would like to put before them one or two thoughts which had occurred to him in listening to the Papers. One was that architecture dealt with straight lines, while sculpture dealt with round, and it was the contrast of the beautiful curved lines with the perpendicular and horizontal lines which was so valuable and helpful to them in their work. Again, there must be a certain balance and uniformity in sculpture in connection with a building. Scale also was very important—much more so than had been brought out that evening. It was important where two or three sculptors were working together that their figures should bear a proper relation to each other. He was not speaking of separate panels or subjects; he did not consider that in that case the sculptors were helping the architect at all, for the subject might not be connected with the building; and the architects then only provided a frame for the subject. Where a sculptor could help an architect was in the expression of the purpose of the building itself. Work in "relief" also was a most important matter: it was a most valuable assistance in tying a building together; by it one got a sort of rhythm running right through a frieze; or, for instance, on a long length of sculpture not necessarily framed, although it might be protected by proper drip-stones, and the figures might have something to stand upon—not framed in panels, but in a continuous line. This relief work stood in sculpture something like decorative work in painting. The word "decoration," however, did not quite imply all they wished to express in regard to a painter's work on wall surfaces as distinct from his easel pictures and frames. "Relief" work was one of the most valuable means the sculptor had of helping the architect. Figures in the round had, of course, a more distinct message to deliver, and one ought to be careful to place them in proper positions where they could tell their story. But whether in the round or whether in relief the great thing was that they should be seen to be part of the whole—part of one building—part of one subject, each having its function to fulfil; so that the omission of any should not be possible without injury to the whole.

Mr. STIRLING LEE, responding to the vote of thanks, said that sculptors were always glad to find themselves among architects, because it was only by such interchange of opinions that they learnt their requirements. There was not the slightest doubt, as Professor Pite said, that sculptors had much to learn from architecture, and what was underlying a great deal of what he had said that evening was the want of knowledge of architecture among sculptors. As to what they had heard from the President about the architecture detracting from the sculpture, he could understand it perfectly at the present day, because certain sculptors did not understand what architecture was, and they made dreadful mistakes sometimes. If the monument was to be perfect the actual base that the pedestal stood upon was quite as important as the figure itself. That was the reason sculptors were making such bad public statues, because they lacked the proper architectural feeling. Sculptors had been divorced from architecture too long; religious views, no doubt, were originally the cause. At the time of Henry VIII.—when the sculpture in the churches was broken—it was absolutely criminal for sculpture to be produced, and eventually foreigners had to be brought over to do it. From that time to the present day there had always been something against sculpture, and sculptors had been excommunicated from church, and architects had, more or less, done without them. After three hundred years of neglect it could not be wondered at that sculptors had lost knowledge of architecture. He thanked the meeting for their kind reception. He felt they had many difficulties to overcome and much to learn, and sculptors looked to architects to help them.

Mr. REYNOLDS-STEPHENS said that Mr. Lee had very ably expressed what he (Mr. Stephens) himself felt. Sir John Taylor had spoken of co-operation almost from the start. If that could be brought about it would be absolutely the ideal thing, but that would never be with their present system of education. He hoped that the President, as a member of the Academy, would try to influence that body in the matter of education. It had been his grievance against his old school that he had not been obliged to learn architecture as a sculptural student. If every student of sculpture were obliged to study architecture the benefits would be enormous. Architects also might, without any loss to their professional work, afterwards study and appreciate the masterpieces of sculpture. Mr. Stannus objected to merging figures in structural sculpture into masses, and he (the speaker) agreed with him. Mr. Beresford Pite's remark as to the importance of architectural sculpture and sculpturesque architecture was absolutely true, but there were so many reasons for the lack of sympathy that sculptors experienced that they had been discouraged from acting for that side. He felt perfectly himself that any piece of sculpture that had a purpose of that kind was a far greater work than any ideal piece.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS 1834
INCORP. 1837 1867

9, Conduit Street, London, W., 10th June 1905.

CHRONICLE.

THE ANNUAL ELECTIONS.

The Scrutineers appointed to count the votes for the election of the Council and Standing Committees for the ensuing Session report that 1,081 sets of papers were received. This is far in advance of former years, and taken with the figures for the last three years, each higher than any previous record, shows the gradually increasing interest taken in the elections. In 1904, 865 members voted; in 1903, 772; in 1902, 569. Twenty-six members (17 Fellows and 9 Associates) were enlisted as scrutineers, and on the motion of the President, the General Meeting of last Monday passed them a very cordial vote of thanks for their labours. The new form of voting-papers, which, the Secretary informed the Meeting, was mainly due to the suggestions of Mr. Henri Favarger [*F.*], greatly facilitated the work of counting. The scrutineers, given in the order of the signatures to the Report, were Mr. H. Favarger, who was elected chairman; Messrs. H. P. Burke Downing, Arthur H. Ryan-Tenison, William Grellier, Sydney F. Bartleet, Horace Field, E. W. Marshall, H. Phillips Fletcher, Arthur Bartlett, Geo. Ernest Nield, Arthur J. Style, Herbert G. Ibberson, A. O. Collard, E. Howley Sim, Melville S. Ward, Thomas A. Pole, Henry A. Saul, Harry Sirr, Arthur G. Morrice, M. Starmer Hack, F. Dare Clapham, H. Carter Pegg, Fred G. Knight, C. R. G. Hall, Wilfred J. Hardcastle, R. W. Collier.

The Scrutineers report the results of the elections as follows:—

THE COUNCIL.

PRESIDENT.—John Belcher, A.R.A. [*unopposed*].

VICE-PRESIDENTS (4).

Elected: Henry Thomas Hare, 840 votes; Leonard Stokes, 674; Edwin Thomas Hall, 641; Sir John Taylor, 611.

Not elected: Alfred Darbyshire, 472 votes; Samuel Perkins Pick, 408; Butler Wilson, 351.

HONORARY SECRETARY.—Alexander Graham [*unopposed*].

MEMBERS OF COUNCIL (18).

Elected: Thomas Edward Collcutt, 514 votes; Ernest George, 509; John Slater, 452; Professor Beresford Pite, 423; Edward William Mountford, 417; John Alfred Gotch, 416; Paul Waterhouse, 402; William Douglas Caröe, 401; Andrew Noble Prentice, 393; John James Burnet, 386; Edward Augustus Gruning, 376; George Halford Fellowes Prynne, 368; John William Simpson, 360; James Sivewright Gibson, 317; Alfred William Stephens Cross, 305; Charles Harrison Townsend, 303; William Henry Atkin Berry, 288; Edmund Woodthorpe, 276.

Not elected: Edmund Wimperis, 274 votes; Frank Thomas Baggallay, 271; John Bilson, 265; George Hubbard, 260; James William Beaumont, 254; William Gillbee Scott, 245; Max Clarke, 243; William Flockhart, 238; Lewis Solomon, 235; John Murray, 232; Frederic Richard Farrow, 223; Maurice Bingham Adams, 214; Edward Mitchel Gibbs, 214; William Howard Seth-Smith, 209; Herbert Davis, 198; Robert Frank Vallance, 178; Charles Edward Mallows, 172; Joseph Douglass Mathews, 163; William Alfred Pite, 147; Herbert Duncan Searles-Wood, 127; Samuel Bridgman Russell, 107; Herbert Hardy Wigglesworth, 98; Robert Stephen Ayling, 42.

ASSOCIATE MEMBERS OF COUNCIL (4).

Elected: Robert Shekleton Balfour, 702 votes; William Adam Forsyth, 509; Henry Vaughan Lanchester, 492; Henry Arthur Crouch, 476.

Not elected: Thomas Edward Pryce, 422 votes; Herbert Winkler Wills, 377; Charles Edward Hutchinson, 369; George Alexander Thomas Middleton, 247; Herbert Hardwicke Langston, 164; Ernest Alexander Young, 143.

REPRESENTATIVES OF ALLIED SOCIETIES (9).

Elected: Henry Langton Goddard (Leicester and Leicestershire Society of Architects), 785 votes; Thomas Cooper (Birmingham Architectural Association), 745; William Mansfield Mitchell (Royal Institute of the Architects of Ireland), 740; John Henry Woodhouse (Manchester Society of Architects), 721; George Bertram Bulmer (Leeds and Yorkshire Architectural Society), 705; John Keppie (Glasgow Institute of Architects), 703; Arthur William Brewill (Nottingham Architectural Society), 701; Philip Caldwell Thicknesse (Liverpool Architectural Society), 607; George Herbert Oatley (Bristol Society of Architects), 568.

Not elected: Harold Ogle Tarbolton (Edinburgh Architectural Association), 476 votes; Benjamin Priestley Shires (Devon and Exeter Architectural Society), 444; James Thoburn Cackett (Northern Architectural Association), 437; John Henry Phillips (Cardiff, S. Wales, and Monmouthshire Architects' Society), 424.

AUDITORS.

Sydney Perks [*F.*]; William Arthur Webb [*A.*].

ART STANDING COMMITTEE.

Fellows (10).—*Elected*: Ernest George, 741 votes; Thomas Edward Collcutt, 720; Henry Thomas Hare, 686; Edward Guy Dawber, 632; William Douglas Caröe, 565; John Macvicar Anderson, 543; John James Burnet, 535; Paul Waterhouse, 487; James Sivewright Gibson, 458; John William Simpson, 437.

Not elected: William Flockhart, 423 votes; Charles Harrison Townsend, 387; William Alfred Pite, 338; Ralph Selden Wornum, 329; Edmund Wimperis, 311; George Campbell Sherrin, 255; Frank Thomas Verity, 222; Robert Watson, 145; William Dunn, 140; Herbert Read, 107; Samuel Sebastian Reay, 107.

Associates (6).—*Elected*: Henry Vaughan Lanchester, 685 votes; Robert Shekleton Balfour, 617; Sidney Kyffin Greenslade, 606; Walter Millard, 581; Arthur Thomas Bolton, 550; Hubert Christian Corlette, 547.

Not elected: Thomas Davison, 420 votes; Herbert Winkler Wills, 351; John Ernest Newberry, 343; Herbert Passmore, 289.

LITERATURE STANDING COMMITTEE.

Fellows (10).—*Elected*: Richard Phenè Spiers, 894 votes; Professor Frederic Moore Simpson, 863; Paul Waterhouse, 801; Hugh Stannus, 788; George Halford Fellowes Prynne, 773; John Bilson, 733; Charles Harrison Townsend, 731; William Alfred Pite, 702; Alfred William Stephens Cross, 678; Charles Edward Mallows, 673.

Not elected: Henri Favarger, 617 votes; Robert Falconer Macdonald, 562.

Associates (6).—*Elected*: Percy Leslie Waterhouse, 788 votes; Percy Scott Worthington, 763; Arthur Maryon Watson, 760; Ravenscroft Elsey Smith, 721; William Henry Ward, 717; William Adam Forsyth, 523.

Not elected: Hubert Christian Corlette, 503 votes; Walter Ernest Dobson, 259; Frank Lishman, 220.

PRACTICE STANDING COMMITTEE.

Fellows (10).—*Elected*: William Henry Atkin Berry, 602 votes; William Henry White, 593; Joseph Douglass Mathews, 591; Alfred Saxon Snell, 574; Thomas Henry Watson, 573; Walter Hilton Nash, 560; Edmund Woodthorpe, 556; George Hubbard, 554; Max Clarke, 540; John Murray, 522.

Not elected: Charles Henry Brodie, 490 votes; Sydney Perks, 473; Ernest Flint, 473; T. Batterbury, 393; Alexander Henry Kersey, 380; Horace Cheston, 345; Charles Fitzroy Doll, 318.

Associates (6).—*Elected*: Augustus William Tanner, 707 votes; Thomas Edward Pryce, 676; Edwin Richard Hewitt, 644; Herbert Arnold Satchell, 643; Herbert Hardwicke Langston, 622; Robert Stark Wilkinson, 537.

Not elected: William Charles Waymouth, 532 votes; Edward Greenop, 506.

SCIENCE STANDING COMMITTEE.

Fellows (10).—*Elected*: Herbert Duncan Searles-Wood, 721 votes; Bernard John Dicksee, 703; Max Clarke, 640; Alfred Saxon Snell, 634; Francis Hooper, 632; Lewis Solomon, 589; George Hornblower, 571; William Dunn, 542; Frederic Richard Farrow, 541; Benjamin Tabberer, 541.

Not elected: Ernest Flint, 527; Arthur John Gale, 518; William Edward Vernon Crompton, 502; Frederic Hammond, 486; Arthur Crow, 461.

Associates (6).—*Unopposed*: Frederick William Hamilton, Edwin Richard Hewitt, Matt. Garbutt, William Jacques, George Pearson, Augustus William Tanner.

Mr. W. H. Atkin Berry [*F.*], referring to the non-election to the Practice Standing Committee of Mr. Edward Greenop [*A.*], said he thought the electorate hardly realised the qualities they had rejected in failing to elect Mr. Greenop. As a member of the Practice Committee, he was sure all his colleagues would echo him in saying that Mr. Greenop had been the most valuable member of that Committee. For the last three years, at least, he had acted as Secretary to the Committee, and the services he had rendered the Committee and the Institute by his work in that capacity, he did not hesitate to say were invaluable. He sincerely trusted that some means might be found of restoring Mr. Greenop to the Committee. He did not think they could do without him. Apart from the usual work of the Committee much heavy work had fallen on the sub-Committee for the Building Acts (Amendment) Bill, and through the whole of that work Mr. Greenop had acted and discharged the most onerous duties in the most able manner. He felt that he should not be doing justice to Mr. Greenop, and that he should not be doing justice to his own conscience, if he allowed this opportunity to pass without saying these few words in recognition of his services, and to show how deeply he deplored that Mr. Greenop had been denied the honour of being returned to the Committee by the spontaneous votes of the electorate.

Mr. W. Hilton Nash [*F.*] said he could quite corroborate what Mr. Atkin Berry had said. He believed it was within the power of the Council to co-opt any member if they choose, and he felt sure that they would do so in Mr. Greenop's case.

The President said he was glad Mr. Atkin Berry had brought this matter forward. He himself was aware of the vast amount of work Mr. Greenop had done for the Institute, and he felt that they ought to propose a vote of thanks to him in that full meeting for his work. The Council were quite conscious of their indebtedness to him, and he was sure would pass a special vote of thanks to him. The Council had power under the By-laws to co-opt members on the Committee, and they would, of course, be only too glad to exercise this power in Mr. Greenop's case.

ARCHITECTURAL COMPETITIONS.

The Institute Regulations.

The ordinary business on the agenda for last Monday concluded, the President invited the Meeting to resume the discussion of the Institute Paper on the Conduct of Architectural Competitions as revised by the Competitions Committee, which had been adjourned from the Annual General Meeting. The Revised Paper with the discussion which had already taken place thereon is printed in the Journal of the 6th May, pp. 449 *sqq.* The questions before the Meeting when the discussion adjourned were—first, a proposal by Mr. C. E. Hutchinson [*A.*] that the Council should be associated with the President in advising Promoters in their appointment of Assessors. With this object he had moved as an amendment that the words "and Council" should be inserted in the second paragraph of clause 1, so that the clause would read: "The President *and Council* of the Royal Institute of British Architects are always prepared to act as honorary advisers to Promoters in their appointment of Assessors." Secondly, an amendment moved by Mr. George Hubbard, F.S.A. [*F.*], that the matter be referred back to the Competitions Committee.

The President, speaking on the first amendment, said it was a matter which intimately concerned the President of the Institute. It was proposed that the Council should be associated with the President in the nomination of Assessors. He must frankly state his opinion that that was a great slight upon their President to begin with. Neither did it seem to him quite practicable either. Some years ago the matter of Assessorships was entirely in the hands of one or two architects whom the officials appointed to be Assessors. The Institute had succeeded to a certain extent in getting the confidence of the various public bodies, and had induced them to refer privately and confidentially to the President, who was supposed to be an honest and straightforward person! By that means Assessorships had been more fully bestowed upon the members of the Institute in various parts of the country. He himself in making these appointments had looked round at the Council and selected the best men there; he had gone outside and selected men in the neighbourhood where the work was likely to be carried out; and if he had ever felt any difficulty, he had taken into his confidence one or two members of the Council who were not otherwise the least bit interested in the matter. If the Council were to be associated with the President, it became a very different matter; there would be an end to all confidence, and there could be no privacy at all. It would be known to all the members of the Council, and no Town Clerk or Mayor or other municipal official could address the President and Council without having first obtained permission from his own Council to do so, and by that time the opportunity of doing anything would be ended. Probably the effect would be to go back to the original practice and appoint the President of the Institute to be Assessor instead of the President appointing other Assessors. At present he was prohibited from doing that from his position, and from the fact that he was asked to appoint Assessors; but if the Council were to be associated with him they would be equally prohibited, in his opinion, from taking any part in the competition or acting as Assessors. For it would be manifestly unfair to others if members of Council were to have a voice in appointing an Assessor and at the same time to take part in the competition. There was just as much difficulty—indeed much more difficulty in the Council appointing an Assessor than in the President doing so, as he would not be engaged on the work at all.

Mr. John W. Simpson [*F.*] said there was another point that the President in his modesty had overlooked—viz. that promoters of competitions often applied personally to the President to nominate an Assessor. They applied to have the benefit of his individual skill and unbiassed judgment as to who was the best man to appoint. They did not refer to the Council at all; hence the President could hardly refer the matter to the Council without, to a certain extent, violating the trust reposed in him.

Mr. W. Gilmour Wilson [*A.*] said that patronage, whether lay or ecclesiastical, however distinguished the individual in whom it was vested, had led to very great evils, and he did not think they had to look far to see that the awards which had been made recently in several cases had not been such as to command the confidence of the profession generally. In saying that he meant no disrespect either to the President or to the Council. It seemed to him that the way out of the *impasse* would be for the Institute to elect annually a Committee of Assessors, in the same way as the Standing Committees were elected. Members of the Institute throughout the country would vote for a number of distinguished men who would act on this Committee of Assessors, and that would make it an easy matter to have any competition, excepting, perhaps, a very small one, assessed by a jury of not less than three. As regards the question of payment, if three Assessors were appointed, three Assessors would have to be paid, and the cost would be prohibitive. It seemed to him, however, that any architect of standing appointed as an Assessor might very well tender his services free; or there might be a nominal scale of charges laid down by the Institute. Any public body or private body promoting a competition should be invited to apply to the Institute to nominate the jury of Assessors.

Mr. J. S. Gibson [*F.*] asked leave to say, on behalf of the Competitions Committee, that the proposal contained in Mr. Hutchinson's amendment was discussed and considered by the Committee, and it was found to be undesirable to associate the Council with the President in the matter of advising promoters as to their appointment of Assessors.

No further remarks being offered on either of the amendments, they were severally put from the Chair, and in the result were declared to be negatived.

The document as amended at the last meeting was then put as a whole and declared duly carried.

Mr. H. V. Lanchester [*A.*] said that unfortunately he had not been present at the last meeting, and he asked the Chairman's ruling as to whether he would be in order in bringing forward a motion defining the limit at which the jury system should be tried. He suggested that beyond certain defined limits a competition should be assessed by a jury of three. That limit should be buildings costing £25,000 and upwards. Competitions of that size were sufficiently important to render it advisable that the greatest care be taken to arrive at a good decision. He, and those who thought with him, believed that the jury system was the best means of attaining that end, and they wanted to move a definite resolution to that effect.

The President ruled that the motion would be out of order, as the document had already been put and carried.

Mr. Lanchester: If I am in order, I beg to move a further adjournment.

The Secretary: You must give notice in writing of a motion for the next Business Meeting.

Mr. Lanchester: I will give notice to that effect.

The Secretary: With these further amendments in view, Sir, I do not know whether I should be justified in going to the expense of issuing this document.

Mr. Leonard Stokes: Although a motion appears to be out of order at the present stage, is it not a pity to pass the document with an amendment hanging over it?

The President: There is no amendment.

Mr. C. H. Brodie [*F.*] said the document was discussed at the last meeting clause by clause, and the clauses as amended at that meeting were eventually carried. In the last clause a motion for adjournment was made as the hour was very late, and the business that evening had been to discuss that clause. The clause had been discussed, and a very large majority had rejected the amendments brought forward. The President had put that last clause from the Chair, and it had been carried. Then the whole document had been put and carried. The result, as he took it, was that the Paper would now have to be printed and issued as an Institute document. If that was not the case, he was prepared to move that the Secretary be instructed to have the document printed as passed by the present and the previous meeting. There would be no finality at all if they were to play about in this way; members who admitted that they were not at the last meeting had come on the present occasion to make speeches about a matter that had been threshed out to the very dregs on the last occasion. If they adjourned again precisely the same thing would happen.

The President ruled that the next business on the agenda must be proceeded with, and called on Mr. Bonner to bring forward the motion of which he had given notice.

Competitions: Selection of Competitors.

The motion brought forward at the Business Meeting last Monday by Mr. Horace T. Bonner [*A*] had been on the agenda for the Annual General Meeting, but had not been reached in time to be taken at that meeting. The motion was in the following terms:—

"That in the event of the President or Council being applied to by promoters of competitions to nominate competing architects, notice of such application shall be published in the JOURNAL, and members of the R.I.B.A. who are willing to take part in such competitions be invited to send in their names for selection by ballot as competitors."

Mr. BONNER reminded the Meeting that he had brought this matter up at a Business Meeting of the Institute some two years ago, when he put the question as to how and in what manner and form competitors for public and important competitions were selected by the Council or the President of the Institute. On that occasion he was informed by Professor Beresford Pite that competitors were selected by ballot. He did not know in what form the names of competitors could be brought up at the Institute, but in spite of the ballot it always happened that the well-known names came out on top. Of course members were not all born to inherit architectural names or to step into practices ready-made for them, and there were many men, comparatively speaking unknown members of the Institute, who should be entitled to have their names brought forward in any important or national competition. On one occasion in that room a speaker had referred to a certain gentleman—one whom he (Mr. Bonner) knew personally, a very skilful architect and of great artistic talent—who had taken Institute prizes, but who through force of circumstances had had to design buildings for a man who was then known as an eminent architect, who had had honours thrust upon him and whose portrait adorned their walls, and it was stated that that gentleman who had made his designs could not be a clever man because "we" had never heard of him. That had set him thinking a great deal, and was one of the causes of his bringing forward his motion. This was a different matter from that as to appointing an assessor. He quite agreed that the appointment of assessors should be in the President's hands. It would be very difficult for members of the Council to interfere in such selection, and they had such confidence in their President that they felt sure his judgment would be sufficient. The selection of competitors, however, was on a different footing. If such selection were placed in the hands of one man—he was not, of course, casting the slightest aspersion on the Chair, he was only speaking on the broad principle—it almost necessarily followed that he would look round and nominate his own particular acquaintances or those men he had good knowledge of. He thought, therefore, some method should be adopted by the President and Council by which such competitions could be made in some way more open for the members of the Institute—some notice, for instance, being given in the JOURNAL, so that applications could be sent in and a selection be made by ballot among them afterwards. He had brought this motion forward for what it was worth; but for the sake of their younger or more unknown members, he thought it was worthy of some consideration, and he hoped the President and Council would see some method of carrying out his suggestion.

Mr. G. A. T. MIDDLETON [*A*.], in seconding the motion, said that Mr. Bonner had proposed a very difficult thing in very moderate language. He did not himself see how the Council could be dictated to as to the manner in which anything of this sort should be done, but he could well understand that it might be wise, when the opportunity offered and when it seemed well to them, to invite names in the way Mr. Bonner had suggested.

Mr. MATT. GARBUTT [*A*.] said it appeared to him that when promoters of competitions applied to the President or Council to nominate certain architects, they did so with the object of getting a limited list of men specially capable of dealing with the particular class of building they wanted to put up. If they invited an indiscriminate sending-in of names from all the members of the Institute, they would probably get among them men who had had no experience in the class of building wanted and who might possibly be in that particular branch incompetent. Did Mr. Bonner want the Council to select by ballot and take their chance of recommending to the promoters men who were really unfit for the task in hand?

Mr. BONNER: I thought the members of the Institute were quite capable architects. Surely, if they are not duly qualified, if they are not skilful men, they ought not to be members of the Institute.

Mr. GARBUTT: There are very special buildings being put up in these days, and they need very special ability and experience in the architect to be able to tackle them at all.

The motion having been put to the Meeting, on a show of hands the President declared it lost.

Election of Members 5th June.

At the election of candidates for Fellowship last Monday objection was raised by Associates present to some of the candidates on the ground that they had not passed the Associates' Examination, the opposition apparently being directed principally against those whose ages seemed to approximate most nearly to the minimum at which candidates can be admitted to Fellowship. In the discussion which took place Messrs. Frank Lishman, K. Gammell, and Edward Carter were spokesmen for the Associates, it being stated that the Associates were fighting for the principle that no one should be elected to the Fellowship unless he had entered by the portal through which the younger members had entered the Institute. They were replied to by Messrs. Leonard Stokes, C. H. Brodie, and G. A. T. Middleton, showing that under the Charter and By-laws, and especially in view of the Institute Resolution of the 29th February 1904 [JOURNAL 5th March 1904], the candidates were eligible, and had been rightly admitted as such. It is considered unnecessary to give a full report of the discussion, as the objections are sufficiently indicated and dealt with in the answer of the Council (*see below*) to the Memorials addressed to them on the subject by members practising in Leeds and Sheffield. While the elections were proceeding, the President, in response to members, directed the Secretary to give brief particulars of the candidates' careers—*e.g.* when and to whom they had served their articles, the year they had commenced practice, their principal executed works, &c. The candidates were severally voted upon by show of hands, with the result that the whole of them were declared duly elected.

The Institute Fellowship.

The Council have had before them memorials from Associates of the Institute in practice in Leeds and members in practice in Sheffield protesting against the nomination by the Council of candidates for Fellowship who have not passed the examination for admission as Associates. The following reply has been sent by the Council to the Sheffield members, and an identical letter has been addressed to the Leeds memorialists :—

9 Conduit Street, W.: 6th June 1905.

Dear Sir,—I laid before the Council at their meeting yesterday your letter of the 26th May with the resolution passed by members of the Institute practising in Sheffield, and I am directed to inform you that they have given the matter their full consideration. I am to point out that they are so greatly in sympathy with the views of your colleagues and yourself that last year they brought before the General Body a proposition to alter the By-laws so that after the 31st December 1906 no person could become a Fellow unless he was an Associate or had passed the Associates' Examination ; but I am also to recall to your mind the fact that at a General Meeting of the Institute held on the 29th February 1904 the General Body passed a resolution that "during the intervening period every architect eligible under the Charter for election who desires to join the Institute as a Fellow should be encouraged to do so." If the Council rejected candidates whom they found not only eligible under the Charter, but eligible by their executed works for admission as Fellows, on the ground that they had not passed the examination, they would be acting contrary to the mandate given to them by the General Body of the Institute. The reason which led to this resolution of the General Body was that it was not fair or politic to call suddenly on architects between thirty and forty years of age, in the full tide of busy practice, to pass an examination under penalty of being excluded for ever from the Institute. I may add that the same principle was adopted before examination for admission to the Associate class was made compulsory in 1882.—I am, dear Sir, yours faithfully,

W. J. Locke, *Secretary*.

J. D. Webster, Esq.

Commemorative National Monuments.

In his Paper on "The Monumental Treatment of Bronze," read recently at the Society of Arts, Mr. J. Starkie Gardner made some pertinent observations regarding the lack of appreciation shown hitherto in this country of the value of monuments to commemorate auspicious and important events in the history of the nation. Setting aside those of a sepulchral character, we possess few of any historic value. The commemoration of our monarchs and greatest men in bronze or marble was never a national concern until late in the seventeenth century. Had the customs of Greece or Rome been maintained, statues would have been set up to those whom the country delighted to honour, and the likeness of numerous interesting personalities would have been preserved to us.

> The most interesting and the most touching monuments erected in this country (says Mr. Starkie Gardner) were the series of stone crosses erected to mark the resting-places of the bier of the beloved Queen Eleanor, of whom we have, fortunately, a splendid portrait in bronze in Westminster Abbey. . . . The sentiment that dictated the erection of these and its mode of expression have remained unique. A long interval elapsed before any other commemorative monument was set up in London, and then it needed nothing less than the appalling destruction of the entire City proper, with all its churches and historic buildings, to awake in the English mind a sentiment that had been so predominant in ancient Greece and Rome. "The Monument"—so called because there was no other—remains practically unique in England, and except in the naming of Waterloo Bridge and Trafalgar Square there is no visible sign that the nation cares to perpetuate the great events which have built up its history. But for the Guards Monument there is nothing publicly commemorating the Crimean war ; there is no sign of any national monument in remembrance of our struggles for supremacy in South Africa ; and even the arrival of "Cleopatra's Needle" failed to make us realise that in it we possess the most fitting memorial of our occupation of Egypt. Monuments of stirring national events should provide history written large and artistic object-lessons for the people. To ancient historic monuments we are indebted for our sole accurate knowledge of the actual arms and appearance of such mighty historic nations as the Egyptians, Assyrians, Medes, Persians, Dacians, Scythians, Greeks, Romans, Gauls, indeed of every nation that has made up the world's history. A Roman triumphal arch affords the only actual representation of the mystic seven-branched candelabrum of the Jewish Temple, while Trajan's column presents a minutely accurate representation of the chain-mail and weapons that proved as fatal to Crassus as to the English at Hastings a thousand years later. Our neighbours across the Channel show a thorough appreciation of the value of grand commemorative monuments. The columns of July and Napoleon, their triumphal arches, the Trocadéro, the bridges and names of streets and places keep alive the national glories and chequered career of the great nation. Already most of these monuments are mellowing into historic value, just as in time to come even our indifferent Guards Monument will serve not only to preserve the memory of our first great struggle with our northern enemy, but will record the exact costume of those who fought the battles. How valuable contemporary monuments in bronze would be to us of the heroes and rank and file who won our historic victories. Our pride in our Empire should surely induce us to hand down the presentment of those of us who fight our country's battles, and also of their gallant foes, whether Zulus, Afghans, or others. With no very earnest or successful antiquaries among our living sculptors, it is perhaps unwise to attempt to construct monuments commemorating anything but the immediate past and present, for certainly Boadicea, in her scythed chariot, and the warrior waving a sword in Palace Yard, with bronze bas-reliefs on the pedestals, do not appeal to us as historically accurate ; but the great events of our own day, the union of the British Isles, the federation of the Colonies, and the consolidation of our Indian Empire, our political freedom and that of the Press, might

be treated seriously if competitions were open to all British subjects. An Alfred Stevens may exist among us, or some scenic artist or poetic dreamer might give birth to ideas for the professional architect and sculptor to realise. My own experience is that the power to design and the power to execute do not necessarily or invariably occupy one cranium. The dearth of reasonable presentments of our historic worthies in the public spaces of our Metropolis has only been lessened of late by the portrait in bronze of Cromwell, and the Achilles in Hyde Park still remains our only symbolic statue against the scores set up in other capitals.

Contrasted with those of Paris, our monumental efforts appear insignificant indeed. Emerging a few days since from the Louvre on to the Place du Carrousel, I was at once faced by a series of superb monuments, including that to Gambetta. A few steps west led by the triumphal arch, with its bronze quadriga, to the Tuileries gardens, where I was confronted with a galaxy of statues and groups, comprising two fine groups of lions and rhinoceros and tigers in bronze. Continuing to the Place de la Concorde I found myself in the presence of the great Luxor Obelisk and two splendid fountains, around which are placed in solemn dignity the great statues emblematic of the noblest cities of France. Beyond, again, are other monuments, including the Marly Horses, the vista being closed by the great Arc de l'Etoile. Grand monuments meet the eye in every part of Paris, and, unlike ours, are effectively placed, and appear to be purposely designed to occupy the positions in which they are seen, frequently amidst trees and flowers. Our monuments, on the contrary, are generally designed before any position is allotted to them.

In our vast Metropolis—laid out for the most part to accommodate the highest number of inhabitants by the great landowners, who parcel out the largest part of its area—there are fewer magnificent sites for monuments than in cities laid out by monarchs or powerful corporations. Most of the open places of London are enclosed squares and gardens closed to the public, each of which in Paris would be laid out with palms, plantains and flowers, and seats around some central fountain or artistic monument. At some not far distant time the happiness of the many may be regarded as more worthy and pleasing than the solitudes of which so few make use. Meanwhile several fine sites for monuments are available. A new and splendid façade to the National Gallery, with loggias and statues, and Trafalgar Square remodelled as a broad approach to it, could commemorate the Federation of the Empire. Parliament Square, with its majestic surroundings, would also provide a matchless site for a noble commemorative monument. There are other less important sites, though it is unfortunate that the few commanding spaces at the intersections of main thoroughfares, created by our municipal councils, fit for the reception of beautiful objects, have been seized upon by the sanitary department for underground conveniences which a refined taste would have gladly relegated to equally accessible but less prominent situations.

It must be quite obvious that monuments that tell in London are not the ordinary portrait statues in garments which do not lend themselves to artistic treatment, and on which so many thousands of pounds have been expended without adding one touch of beauty to the town. Monuments to be telling in London must either comprise more than a single figure or be of larger size than the heroic size sanctioned by tradition, or, best of all, be equestrian. A rider on his steed assumes a dignity of pose embodying mastery of an animal many times more powerful than himself, which is most gratifying to humanity. Monuments might assume grander proportions were kindred spirits to be commemorated, associated in groups, or as parts of a whole. Britannia and some of her statesmen might symbolise the union of the British Isles; Neptune, with seamen and navigators, our vast maritime power; Victory and warriors a victorious reign. Allegories of Commerce, Science, Peace, Prosperity, Wealth, Fortitude, Charity, Justice, Mercy, Truth, are all capable of artistic treatment, and would elevate the thoughts of the gazer and passer-by, which I take to be the chief reason for setting up monuments, which are not erected merely for pomp and vainglory. Such might take the form of groups, or combine with columns, triumphal arches, fountains or bridges—which will perhaps provide the most important sites we are likely to acquire in the near future under existing *régimes*. Mediæval bridges with their defensive gates, chapels and figures of guardian saints, were picturesque objects. In the cases of Blackfriars and Westminster, we have realised the difficulty of decorating bridges not designed for the purpose of receiving statuary; while visitors to the Paris Exhibition realised, on the other hand, the surprising possibilities afforded by bridges when designed to be commemorative. Instead of the commonplace pannier-like widening of London Bridge, it might have been converted into a glorious monument to the British Navy; while the new bridge at Vauxhall might have been fitly made to commemorate the services of the Household Brigade in Egypt and South Africa, the purely utilitarian expenses being defrayed as heretofore, and the monumental features by subscription.

Ancient Lights.

Mr. Justice Farwell, in the case of *Higgins* v. *Betts* (Chancery Division, 26th May), gave a useful exposition of the law as to the easement of light as it may be taken to be interpreted by the House of Lords in *Colls* v. *The Home and Colonial Stores.* In his lordship's view that decision did not disturb the existing state of things so much as is generally imagined. The dominant owner was never entitled, either by prescription or under the Act, to all the light that came through his windows. Formerly it was not enough to show that some light had been taken, but the question always was whether so much had been taken as to cause a nuisance. But for many years the tendency of the Courts had been to measure the nuisance by the amount taken from the light acquired, and not to consider whether the amount left was sufficient for the reasonable comfort of the house according to ordinary requirements. If a man had a house with unusually excellent lights, it was treated as a nuisance if he was deprived of a substantial part of it, even although a fair amount for ordinary purposes was left. It is in this respect, Mr. Justice Farwell points out, that Colls' case has readjusted the law. It is still, as it always has been, a question of nuisance or no nuisance; but the test of nuisance is not how much light has been taken, and is that enough materially to lessen the enjoyment and use of the house that its owner previously had, but how much is left, and is that enough for the comfortable use and enjoyment of the house according to the ordinary requirements of mankind? Turning to the facts in the case before him, his lordship said they were reasonably simple. The plaintiffs were, respectively, the lessee and the owners of the Red Lion public house, Cow Cross Street, E.C. It had an exceptionally good light to the west, where it faced over a large open space. The front, which formed the subject of the present action, was not in Cow Cross Street, but in Benjamin Street, which was a narrow street of 13 feet. Opposite to the plaintiffs' premises was an old building which, at a certain point, had a large gap in it. The defendant proposed to build up the whole of that gap and add a height of 6 feet along the whole of the building. He had no hesitation in finding that the erection of a house so close to the plaintiffs' premises would have such an effect upon the plaintiffs' windows as to be a nuisance. The windows he found to be affected were these: First of all the window of the private bar was affected, but in this case it was not very large. The damage to the light of the saloon bar was very serious, and he found as a fact, on the evidence, that before the defendant's building was erected, the saloon bar, by reason of the gap, was a reasonably well-lighted and comfortable room. It was now a dark and gloomy room, and the business of the plaintiffs was very seriously and prejudicially affected. In the dining-room the plaintiffs were left 32 degrees of light only, in the place of 79 degrees. He had to consider what was left, and not what had been taken away. The defendant had put up a wall where there had been an open space before. He thought this constituted a most material and substantial privation of light, sufficient to render the occupation of the house uncomfortable and to prevent the plaintiffs from carrying on their accustomed business on the premises as beneficially as they had formerly done. His lordship said he would grant an injunction in the *Yates* v. *Jack* form, with the addition of the words "so as to be a nuisance," and with the qualifications which counsel had agreed on. There would be liberty to apply as to a mandatory injunction, but he hoped that the architects on both sides would be able to come to some reasonable arrangement, and so prevent the case coming back for reconsideration.

International Building Congress at Liège.

The Federation of Entrepreneurs de Travaux Publics et Civils of Belgium are organising an International Congress of the Industry of Building and of Public Works to take place from the 14th to the 20th September next at the Universal Exhibition at Liège. The Congress is under the patronage of the Belgian Government, and two of the Ministers are Hon. Presidents. The subscription, 25 francs, confers the privilege of attending the banquet and all the meetings and receptions, receiving the reports and papers, free admission to the Exhibition while the Congress lasts, and the right to participate in excursions at reduced charges to Brussels or Antwerp, Gand, &c. The Secretary is M. Van Ophem, 5 Grand' Place, Brussels.

Sir Caspar Purdon Clarke: a Personal Note.

The article on Sir C. Purdon Clarke [*F.*] by Mr. John Lane, of "The Bodley Head," which appeared in the *International Studio* for April has been revised and supplemented by the author, and is now issued separately as a little book with the above title. The occasion for the article was Sir Purdon's appointment to the directorship of the Metropolitan Museum of Art, New York. Mr. Lane is a warm admirer of his subject. He regards his departure from the Victoria and Albert Museum as little short of a national loss, and one that British lovers of the arts will never cease to deplore. It appears that some Americans are murmuring because the post has not gone to a countryman of their own, and Mr. Lane has set himself to show them what manner of being their new director is, and how difficult it is for a country so remote from the old world to produce a man as eminently fitted as Sir Purdon is for the post he has been sought out to fill. He not only knows all that is best about the modern arts, but he has the rare faculty of being an expert in antiquities. Nothing is more fascinating, says Mr. Lane, than to hear him describe the causes and effects of the various constituents employed, say, in producing a piece of pottery, enamel, or some Oriental fabric, be it ancient or modern. He appears to be chemist, scientist, artist, craftsman, antiquary, archæologist, and alchemist combined. He has the instinct of at once recognising the genuineness of an antique as well as its beauty; in some cases indeed he would know spurious objects blindfold, from their odour. American connoisseurs and dealers will have cause to rejoice in having in their midst one so expert in detecting the sham antiques in which such a thriving trade is driven in the States. But the real function of a national museum is to educate—to teach the people of the country how to impress on their arts and manufactures all that is highest in the arts and crafts of the world. This is the sphere of work Sir Purdon has been engaged in with such conspicuous success at South Kensington, and here it is that his influence and his organising genius will operate so advantageously for the American art student. Those of us who have come in contact with Sir Purdon have all experienced the personal charm Mr. Lane speaks of, and his inimitable manner of imparting to others his knowledge and enthusiasms. The Institute, of which he is a Fellow of seventeen years' standing, has been indebted to him on many occasions for his good offices in procuring from the collections at South Kensington the best examples to illustrate the various arts and crafts dealt with in Papers read at its general meetings. While viewing with no little pride the compliment paid by America to one of their own body, the feeling will be pretty general among members that art in this country will suffer a grievous loss by the removal of their colleague from the great centre with which he has been so long and usefully associated. Mr. Lane gives in his booklet a photographic reproduction of the very excellent portrait of Sir Purdon painted by Mr. C. L. Burns.

L.C.C. School of Building.

Professor Beresford Pite [*F.*] has been appointed Director of Architectural Instruction and Lecturer on Architectural Subjects at the London County Council School of Building. The School was established by the late Technical Education Board, and their intention was to appoint at an early date some well-known authority on architecture to act as director of the architectural instruction at the School and give lectures on architectural subjects. Finding the classes in architecture but very poorly attended, the L.C.C. Education Committee recommended that a Director be appointed forthwith, with the result that the post was offered to and has been accepted by Professor Pite. His lectures, it is understood, will deal with architecture as a building art, with the purpose of practically illustrating the essential relation between building craftsmanship and architectural progress. Ancient architecture will be dealt with, Greek, Roman, and Renaissance buildings being brought under review, not merely in historical sequence, but as practical illustrations of problems in design and construction. In connection with the work of the building craft classes, supervision and advice will be given to impart architectural character and usefulness to the work of the classes for drawing, stone and wood carving, decoration and decorative plastering. Assistance will also be given in arranging the several building craft classes into a complete course of architectural education.

The Quadrant, Regent Street.

The Building Act Committee of the London County Council report that they have considered an application by Mr. R. Norman Shaw, R.A., on behalf of Mr. J. F. F. Horner, a Commissioner of His Majesty's Woods and Forests, for consent to the rebuilding of the portion of Regent Street known as The Quadrant, and situated between Piccadilly Circus and Vigo Street on the south side, and Piccadilly Circus and Glasshouse Street on the north side, with the front portions of the upper floors of the new buildings carried over the entrances to Air Street on both sides of Regent Street. It is stated that the reason for desiring to carry the upper floors of the new buildings over the entrances to Air Street is to preserve unbroken the curved sweep of the upper cornice, and it is pointed out that the entrance to Swallow Street has always been similarly built over. Mr. Norman Shaw has expressed his willingness to make satisfactory provision on the second floor for the ventilation of Air Street, and also for that of Swallow Street, although the latter street does not come within the limits of his application. The Committee think that the proposed rebuilding will effect a great improvement in the appearance of Regent Street; and in order that the Council may see what is proposed to be done, they have given instructions for the elevation submitted by Mr. Norman Shaw to be exhibited in the lobby of the Council Chamber. The Committee recommend that the Council, in the exercise of its powers under sections 13 and 22 of the London Building Act 1894, do consent to the rebuilding of The Quadrant as proposed, with the front portions of the upper floors of the buildings carried over the entrances to Air Street on either side of Regent Street, as shown on the plans submitted with Mr. Norman Shaw's application, such consent being subject to the following conditions: that satisfactory provision be made by means of an opening at the second-floor level in the buildings over Air Street, on both sides of Regent Street, for the ventilation of Air Street; that the buildings be commenced within twelve months and completed within two years from 23rd May 1905; and that the buildings be otherwise erected and retained without any addition thereto, and in exact accordance with the application for the consent and the plans and particulars which accompanied such application.

St. Margaret's, Westminster.

Canon Henson, Chairman of the Restoration Committee of St. Margaret's, Westminster, appeals in *The Times* for financial aid towards the work of internal restoration projected at the church, and especially in regard to the great east window. He says that the Committee are advised that the window needs to be taken out and releaded, and that unless the work is undertaken without delay the glass will suffer. It has been decided at the same time to undertake the renovation of the east end of the church. The Committee will be able to acquire from His Majesty's Office of Works possession of the narrow strip of ground which separates the wall of the church from the railings, and it is proposed to utilise the additional space. Accordingly, the new east wall will be built a little eastward of the present wall, giving a slightly greater length to the chancel. The cost of the work will be about £3,000.

"Refinements" in Mediæval Architecture.

In response to the appeal of the Edinburgh Architectural Association, the Council have voted the sum of ten guineas towards the exhibition of drawings and photographs of Architectural "Refinements" which the Association propose to hold in Edinburgh during August and September next. The nucleus of the collection, forming part of the research work of Mr. W. M. Goodyear, has been on exhibition at Rome, where it has aroused much interest among Italian architects and archæologists. The Trustees of the Brooklyn Institute of Arts and Sciences have offered the Association the loan, not only of the drawings and photographs at present in Rome, but of the whole of their extensive collection, and Mr. Goodyear himself promises to lend, in addition, a number of valuable drawings from his own collection. The constructive curves in Greek work are, of course, fully accepted, and Mr. Goodyear contends that Egyptian and Roman remains show corresponding deflections from the straight line. The work proposed to be exhibited represents the mass of evidence Mr. Goodyear has collected to indicate the linking-on to Classic tradition of the more complex Mediæval building. The Edinburgh Association consider that the results of these researches are of high educational value to architectural students, and will stimulate more searching observations of the "refinements" of Mediæval architecture. The expenses connected with the exhibition, insurance, freight, printing catalogues, &c., are greater than the Association are able to meet by themselves, and they ask those interested to assist in raising a fund of about £200.

Coal Smoke Abatement Society.

The Secretary has received the following communication from the Society. The Report referred to can be seen in the Library:—

5th May 1905.

Dear Sir,—In forwarding for your perusal the accompanying copy of the last Report of the Coal Smoke Abatement Society, I am directed by the Council to draw your attention to the fact that the Society is in urgent need of further financial support. The successful work which has been accomplished in the past can only be maintained by a further and immediate accession of new supporters, and members are earnestly requested to endeavour to interest their friends in the Society's work and needs and enlist additional subscribers.

If desired, I shall be glad to send appeals to any person whose names you may be able to supply.—Yours truly,

Lawrence W. Chubb, *Secretary.*

CORRESPONDENCE.

Herne Hill Church Competition.

Temple Chambers, E.C.: 20th May 1905.

To the Editor Journal R.I.B.A.

Sir,—In this competition six or more architects were invited to send in designs on the following terms, the conditions having been slightly revised after the R.I.B.A. "Suggestions" had been sent to the promoters.

There was no assessor and no guarantee to erect any portion of the buildings, nor to employ the architect whose designs were selected by the committee, nor to compensate him in any way if the work were not carried out, but only to pay to the authors of the designs placed second and third paltry premiums amounting together to less than one-fifth per cent. of the proposed cost of the buildings, and no undertaking to return the designs, which were to be submitted under the authors' names!

Three at least of the invited architects declined to compete, but three others—all members of the Institute, and two of them well-known church architects—sent in designs under the above conditions. Is it to be wondered at that the public show so little respect for architects and the R.I.B.A. when members can be found who are willing to compete on these terms?

Yours faithfully,

Louis Ambler [*F.*].

Modern French Architecture.

Fellows Road, N.W., 3rd June 1905.

To the Editor Journal R.I.B.A.

Sir,—As it is probable that suggestions and proposals are already being considered with a view to making the forthcoming International Congress a success, may I make a suggestion, viz. that having regard to the important position occupied by the *École des Beaux-Arts* in Paris, and the influence it exercises over French and American design, it is desirable that an exhibition of drawings of recent French street fronts should be arranged for in London during the Congress?

It is a good test of the value of architectural training to observe the product in the ordinary commissions to which the general practitioner is usually restricted, viz. domestic and commercial buildings. We in England become acquainted with many of the large public buildings of France by photographs and illustrated journals, but the house fronts and small civil buildings are less known.

For several years past M. Bouvard, Hon. Corr. Member of our Institute, has, I believe, initiated competitive awards for street-front designs, and, so far as they are the work of *Beaux-Arts* men, a collection of the selected ones would be interesting to us—if not instructive—as work from which English architects may learn something.

I believe six façades are selected every year by a committee, and if a loan of these drawings could be arranged by the kind offices of M. Bouvard very little expense would be incurred. At the same time drawings of a like number of English façades erected, say, during the period covered by those of our neighbours, might be shown. So far as I remember, only one of these French designs has been illustrated in *The Builder*; and to say the least it was not inspiring, although it was very novel.

I have been asked by American students why we are not keen for admission to that *École*, to which their own professors have sent them as the *ne-plus-ultra alma mater*. I could only suggest that we admired the draughtsmanship, but were not convinced by the designs it expressed. "But what of the expert planning?" was the rejoinder. Perhaps there is something in that, but this by the way. American architecture is being moulded upon French, and the bold monumental style of men like Richardson has gone out of favour. Is it an advance or not?—Yours truly,

E. W. Hudson [*A.*].

MINUTES. XV.

At the Fifteenth General Meeting (Business) of the Session 1905–6, held Monday, 5th June 1905, at 8 p.m.—Present: Mr. John Belcher, A.R.A., *President*, in the Chair, 38 Fellows (including 15 members of the Council), and 46 Associates (including 2 members of the Council)—the Minutes of the Meeting held 15 May 1905 [p. 496] were taken as read and signed as correct.

The Hon. Secretary announced the decease of Robert Phillipps Whellock, *Associate*, elected 1875.

The Hon. Secretary drew attention to a list of books [see *Supplement*] comprising additions to the Library acquired by presentation or purchase since the last Business Meeting, and, on his motion, a vote of thanks was passed to donors by acclamation.

The Secretary read the Report of the Scrutineers appointed by the Council to direct the election of the officers, Council, and Standing Committees for the Session 1905–6, and the candidates reported successful were thereupon declared to be duly elected to the respective offices.

On the motion of the President a vote of thanks was passed to the scrutineers by acclamation.

The following candidates for membership were elected by show of hands under By-law 9:—

As Fellows (37).

STANLEY DAVENPORT ADSHEAD.
ROBERT FRANK ATKINSON.
HARRY BESWICK, Chester.
JOHN PRIESTLEY BRIGGS.
GEORGE THOMAS BROWN, Sunderland.
ROGER THOMAS CONDER [*A.*] [*Soane Medallist* 1881], Buenos Aires.
EUSTACE LAURISTON CONDER, Buenos Aires.
HUBERT CHRISTIAN CORLETTE [*A.*] [*Owen Jones Student* 1896, *Institute Essay Medallist* 1899].
ALFRED COX.
JAMES BOW DUNN, Edinburgh.
ROBERT EVANS, Jun., Nottingham.
WILLIAM JOHN GILLILAND, President of the Ulster Society of Architects, Belfast.
FRANCIS THOMAS WILBERFORCE GOLDSMITH [*A.*].
ERNEST JOHN GOSLING.
ARTHUR ERNEST HEAZELL, Nottingham.
OSBORN CLUSE HILLS [*A.*].
JOHN HUDSON [*A.*].
JOHN HUNT [*A.*].
ALLEN TREVIS HUSSELL [*A.*], Ilfracombe.
RICHARD MACDONALD LUCAS, Southampton.
FREDERICK WILLIAM MARKS [*A.*].
JAMES HENRY MARTINDALE, Carlisle.
GLENDINNING MOXHAM, Swansea.
Sir CHARLES ARCHIBALD NICHOLSON, Bart., M.A. Oxon. [*Tite Prizeman* 1893].
FREDERICK WILLIAM PEEL [*A.*].
JOSEPH CRADDOCK PERKIN.
WILLIAM PYWELL [*A.*].
CHARLES HENRY REW, Great Berkhamsted.
EDWIN JAMES SADGROVE, Broadstairs.
THOMAS ARTHUR SLADDIN, Cape Town.
FRANK ADAMS SMITH [*A.*].
Professor RAVENSCROFT ELSEY SMITH [*A.*] [*Greek Travelling Student* 1888].
HARRY TEATHER, Cardiff.
FREDERICK WALLEN [*A.*].
WILLIAM WILLIAMSON, Kirkcaldy.
WILLIAM WOODWARD [*A.*].
ALFRED BOWMAN YEATES [*A.*].

As Associate.

CHARLES THOMAS PALMER [*Probationer* 1898, *Student* 1900, *Qualified* 1904].

As Hon. Associates (2).

EDWIN AUSTIN ABBEY, R.A., LL.D., F.S.A., Fairford, Glos.
WILLIAM GOSCOMBE JOHN, A.R.A., Membre Correspondant de l'Institut de France.

As Hon. Corresponding Members (2).

Señor Don JOSÉ URIOSTE Y VELADA, of Madrid.
HENRI PAUL NÉNOT, Architecte de la Sorbonne, Président de la Société Centrale des Architectes Français, Membre de l'Institut, Commandeur de la Légion d'Honneur, Paris.

Discussion of the Institute Paper on the Conduct of Architectural Competitions as revised by the Competitions Committee, adjourned from the Annual General Meeting, having been resumed, an amendment by Mr. C. E. Hutchinson [*A.*], seconded by Mr. A. W. S. Cross [*F.*], proposing the insertion of the words "and Council" in the second paragraph of clause 2, in order that the Council should be joined with the President in advising promoters in their appointment of assessors, was discussed, and having been put from the Chair was voted upon by show of hands and declared to be negatived.

A further amendment by Mr. George Hubbard [*F.*], seconded by Mr. H. Hardwicke Langston [*A.*], moving that the matter be referred back to the Competitions Committee, was likewise negatived.

The document under the new title "Regulations for the Conduct of Architectural Competitions" was then put as a whole and declared duly carried.

Mr. H. V. Lanchester [*A.*] proposing to bring up a new motion in connection with the Regulations above referred to, and being ruled out of order by the President, gave notice of his intention to bring forward his motion in due order at the earliest opportunity.

A motion by Mr. Horace T. Bonner [*A.*], seconded by Mr. G. A. T. Middleton [*A.*], that in the event of the President or Council being applied to by promoters of Competitions to nominate competing architects, notice of such application should be published in the Journal, and members of the R.I.B.A. willing to take part in such competitions should be invited to send in their names for selection by ballot as competitors, having been discussed, was put to the Meeing and negatived.

The proceedings then closed, and the Meeting separated at 10 p.m.

THE ROYAL GOLD MEDAL.

Presentation to Sir Aston Webb, R.A., F.S.A., *Past President*, 19th June 1905.

ADDRESS BY MR. JOHN BELCHER, A.R.A., *President*.

Ladies and Gentlemen,—

It is my good fortune this evening to conclude my year of office in a way that affords me an especial pleasure. Surely no President can desire anything better than as his last official act in the session to be called upon to confer high honour upon an esteemed friend and colleague.

The Royal Gold Medal which I am here to present to Sir Aston Webb is a distinction conferred by His Majesty the King on the unanimous recommendation of Sir Aston's brother architects.

For me to point out how this great honour has been won, and how richly it is deserved, might well seem superfluous, if not impertinent; for there is no man better known or more highly esteemed in the profession than Sir Aston Webb—and probably nobody who has achieved a greater general popularity.

Yet there are a few things I should like to say, and no doubt, too, a few things on which you will naturally expect me to give you some information.

I am not going to give you a biography of our friend here, though it does seem the fashion nowadays to write (and even publish) an account of a man's life long before he has passed over to the majority.

Dr. Johnson is said to have remarked that if he really thought Boswell was making notes of his life with a view to publication, he would take his (Boswell's) life first. The Doctor was a distinctly truculent old fellow, and Boswell might well have been afraid to avow his sinister design.

But I have had many an experience of Sir Aston Webb's geniality and kind-heartedness, and am therefore prepared to say a few things about him, even though he be still, as I am glad to say, very much alive.

First, let me point out how closely, from the commencement of his career, our former President has identified himself with his profession, and how readily he has lent all his energies and abilities to serve the true interests of his brother architects.

The very year after he was articled to Mr. Banks (of Banks & Barry)—that is, some thirty-eight years ago—he became a member of the Architectural Association, and from that time onward continued to serve the Association in one capacity or another, until finally in 1884 he was elected its President.

Similarly with our own Institute. In 1874—that is, the year after he won the Pugin Studentship—he joined us as an Associate, was elected a Fellow in 1883, served as Member of Council, Hon. Secretary, and Vice-President, and finally became our President in 1902, bringing to the Chair a wealth of experience and ability which won the admiration of all.

Neither increasing honour nor the burden of works growing every year both in number and importance was allowed to interfere for a moment with his duty to the profession generally or with his kindly consideration for his fellows. In the advancement of his own fortunes he has never permitted himself to forget others; he never misses an opportunity of furthering the interests of those who are still painfully climbing the ladder.

We usually allow our Presidents, when once they have passed the Chair, to slip back into a sort of background of semi-obscurity, and thus practically, though not intentionally, limit their opportunities of service.

This course has the advantage of making such demands upon new and rising talent as to provoke it to give of its best in the cause of the Institute; but I cannot help thinking that it is a pity we have not some sort of "Upper Chamber," not as a kind of *otium cum dignitate* refuge for men who have done their work, but as a Standing Committee in all matters of the highest importance—matters, viz. which call for the judgment and experience of years rather than the energy and impetuosity of youth.

Fortunately for this Institute, Sir Aston Webb has not ceased to take a practical and working interest in its welfare. He remains, as you know, Chairman of the Board of Architectural Education—a most important movement initiated during the term of his Presidency, and fraught, I feel sure, with very great and valuable results.

Outside the Institute the list of his activities and responsibilities is a long one. He is the representative of Architecture at the London University, and holds, as it were, a "watching brief" in its interest at the Royal Academy, to which he was elected an Associate in 1899 and Academician four years later. He supervises the work in the architectural school there, and many can testify with what ready sympathy and encouragement he meets all who come to him for help and advice.

He is a trustee of Sir John Soane's Museum, also of the Architectural Benevolent Society and of the Artists' General Benevolent Institution. There are many other ways, too, as many know well, in which less publicly, but not a whit less truly, he is found serving the cause of Art.

Now let me turn to speak of some of Sir Aston Webb's works—those monuments by which he is already generally known, and by which in time to come he will be famous.

His peculiar distinction—and I might say peculiar good fortune, too—lies in the large number of important public buildings that have been entrusted to him.

Many of these have been won by sheer weight of merit shown in competition. Amongst such are to be included the Victoria Courts at Birmingham, the Metropolitan Life Assurance Society's Offices in Moorgate Street, and the Christ's Hospital Schools at Horsham, all carried out in partnership with Mr. Ingress Bell.

The first named, the Courts at Birmingham, have served as a model for many similar buildings since.

Our present interest, however, centres in the great works committed to him in London, viz. the completion of the Victoria and Albert Museum and the National Monument to Queen Victoria, both of them won in competition; also the Royal College of Science, opposite the Imperial Institute, and additions to the Admiralty Buildings at the east end of the Mall, both of which he received by direct commission.

When not long ago I visited the new buildings of the Victoria and Albert Museum I conceived a great admiration for the arrangement of them. The planning is simple and readable; there are long vistas, and a great central octagonal hall; moreover all the galleries are of noble proportion.

The whole of the interior is to be treated as a background for the exhibits, with little decoration, and depending upon good form and colour. The staircases and galleries are so arranged as to afford glimpses from different levels of the larger objects on view. The external effects can hardly as yet be realised, but I know that the sculptor's art is to be called in to aid in setting forth the nature and purpose of the building.

As is so often the case with our public buildings, there is no central approach; but in the present instance it would appear possible to open up the Square opposite, so that there might be at least an open space from which to view the Museum, and where carriages might stand out of the way of the ordinary traffic. By this means not only would an important centre be more or less adequately indicated, but the great central entrance itself would receive a marked accession of dignity.

If we want to appreciate to the full the advantage of a fine approach to a great public building, we have only to note the result of Sir Aston Webb's treatment of the Mall in connection with the National Monument to Queen Victoria. Indeed, after viewing the Mall now, we are compelled to admit that the present front of Buckingham Palace, to which it leads, is unworthy of it.

As regards the rest of the scheme, the work is not yet sufficiently advanced for criticism. We still wait for the colonnades which are intended to enshrine the Monument, but eventually, when Mr. Brock's great work is in its place, these columns will stand in rank almost like architectural Grenadiers in attendance on Her Majesty.

A very important, interesting, and ingenious part of the scheme is on view in the Architectural Room of the Royal Academy. The entrance to the Mall from Charing Cross is masked by a building with curved frontages, one to the Mall, the other to Charing Cross, so that the change in the line of access at this point will not be so noticeable.

The entrance to the Mall will be through arches. Within the last week the Keeper's Lodge has been completed, and its position centrally facing Buckingham Palace Road is seen to be most effective.

These examples are among the happy results of Sir Aston Webb's competitive efforts; but for the consolation and encouragement of less fortunate men, with whom I have every sympathy, I may say that he has not always been so successful in competition—as, for instance, in the cases of the Admiralty, the War Office Buildings, the Imperial Institute, and the Freemasons' Schools at Bushey.

But when he has scored a win, he has taken such full advantage of his opportunity, and achieved such good results, that he has received many direct commissions which were in themselves a flattering testimonial to his ability.

The Admiralty entrusted to him the new Britannia Royal Naval College at Dartmouth. In conjunction with Mr. T. M. Deane he is building the College of Science Government Offices in Dublin. He and Mr. Bell together are responsible for the Royal United Service Institution adjoining the Banqueting House, Whitehall, the new University of Birmingham now in course of erection, and for certain additions to Caius College, Cambridge.

Then, too, he has done a good deal in the way of churches, both restoring and building. The most important and most interesting of all these is the restoration of St. Bartholomew the Great in Smithfield between the years 1880 and 1890. He has restored three churches in Worcester, Burford Church, Herefordshire, and Witley in Surrey. He has built St. George's, Worcester; the French Protestant Church and Schools in Soho, and churches in North Wales.

Then there are various domestic works; mansions for Sir Offley Wakeman, near Shrewsbury; Sir Augustus Webster, at Hildon, Hants; and many others. The Flour Mills and Granaries for Messrs. Mumford are amongst his most successful buildings in this kind.

Altogether it makes a long list—an appallingly long list, we might say—when we consider the vastness of some of the undertakings.

Such as it is, it shows with what rare ability and power of work Sir Aston Webb is endowed. Few men could accomplish all that he has accomplished. He is not an artist only, but an excellent man of affairs also, and possesses a tact and a readiness of resource which are given to but few. His character shows itself in his work. The intellectual versatility and refinement, the brightness and felicity of temperament, which we recognise in the man, all reproduce themselves in the examples of his art.

Above all, by his sincerity and straightforward dealing he has won the confidence and esteem of all who have come into contact with him.

It was his distinctive and characteristic work and personality which won for him the honour of knighthood in November last: an event which gave the greatest satisfaction to his friends and brother artists.

What more shall I say? Tennyson tells us that when the little "Revenge" was taken the stately Spanish men praised Sir Richard Grenville "to his face with their courtly foreign grace." But it takes a Spanish Don to do that; besides, Sir Richard was very badly wounded!

I think I have said as much as our national reserve will allow, enough to convince Sir Aston Webb of our high appreciation both of himself and his work, and in particular of his generous, self-denying labours in connection with the Institute.

I have much pleasure, Sir Aston Webb, in investing you with the Royal Gold Medal, and in assuring you of the high regard in which you are held by the whole of the profession.

SIR ASTON WEBB'S RESPONSE.

Mr. President, Ladies, and Gentlemen,—

THE presentation to me of this Royal Gold Medal given by His Majesty the King on the recommendation of my brother architects, the members of this Institute, fills me with an overwhelming feeling of gratitude which unfortunately I have not the power adequately to express; while the long line of my illustrious predecessors makes me keenly alive to my own shortcomings and makes me appreciate still more your forbearance in selecting me. I ask you to accept my grateful and heartfelt thanks, for I hold this honour as the highest that can be offered to an architect by his professional brethren, and the Medal with the recollection of its presentation this evening will always remain with me as one of my most cherished possessions; and, Sir, if I may say so, the pleasure and honour are greatly enhanced by receiving it at the hands of so distinguished an architect and so old a friend as yourself: one with whom it has been my pleasure to work for so many years, and the words with which you have been kind enough to accompany it have still further increased my pleasure and obligation; you have also, Sir, with that high imagination with which you are gifted, painted a portrait of me for which I thank you most gratefully, all too flattering though it be. I do not propose to-night to interfere with the work of a brother artist who has made so much out of such poor material; for though it is certain that from my very intimate knowledge of the sitter I could add a few realistic touches which would undoubtedly increase the likeness, at the same time I fear they would spoil your picture, and so I feel the best thing for me to do is to leave well alone.

Again, it would ill become me on such an occasion as this to speak of my work which you, Sir, have already referred to in so kindly a way. The drawings shown here to-night (by special request) show what great opportunities I have had, and I am afraid also how far short I have come to realising them. I can only say I have tried my very best and done my best, and where I have failed it has not been through idleness or neglect on my part.

There is, however, one work on which I am engaged on which I should like to say a word, viz. the architectural surroundings for the great National Memorial to Queen Victoria, by Mr. Brock, in front of Buckingham Palace. Owing to the time this great work of Mr. Brock's necessarily takes to execute, we have been enabled to proceed with the architectural work of preparing the site in sections, doing a portion of the work (such as alterations to roads &c.) each autumn at a minimum of public inconvenience, and thus (as we architects usually have to do) painting the picture, as it were, wash by wash in the full gaze of the public, who apparently, and not unnaturally, seem to think that each last wash is the final one, whereas I need hardly say there is much yet to be done. The next work will probably be finishing the piers that form the three gateways into the enclosure with groups of sculpture emblematic of the three great self-governing colonies, for which three eminent sculptors have been commissioned under the general direction of Mr. Brock. A start will also shortly be made with the foundations for the building at the east end of the Mall, through which, under three archways, will pass the great road into Charing Cross. The idea of placing the building as shown is to form a worthy termination of the Mall and also to screen the change of axis between the Mall and the Strand. But when all the architectural work has been done, it will still be but a frame without a picture, and the public must be kind enough to suspend its final judgment until Mr. Brock's splendid work is completed and forms a magnificent centre to the whole, all the other work being subsidiary and complementary to it. With regard to the general effect, time only will give the trees needed to turn the broad walk through the Green Park into a shady avenue like the broad walk in Kensington Gardens, to which it is equal in width, and time only can make the trees meet overhead and shade the footways on either side of the Mall from the Palace to Charing Cross.

Ruskin long ago pointed out the main distinction of architecture over the other arts in that we architects alone amongst artists are called by necessity to "fraternity of toil," and on an occasion such as this one naturally thinks of the number of fellow-workers to whom one is of necessity so largely indebted before a great building can be erected and finished. Many of my fellow-workers have honoured me by being present here to-night, and I thank them for their presence. To my friend Mr. Ingress Bell, with whom I have shared many successes and disappointments during the last twenty years, I owe most of all, as do the buildings in which we have been jointly associated, not only in matters architectural, but in many other walks of life in which his example has inspired me. The work we have done together has always, thanks to him, been to me one of my greatest pleasures; one of the results of it is shown here to-night in the new buildings for Christ's Hospital.

To my staff I am also largely indebted, ever changing as it is, for it is my happiness to have young men and to see them one by one launch out for themselves. When they leave me it is as personal friends, and I hope they feel they have had a real share in the work we do together, and that they have helped me to the honour you have done me to-night, as they most assuredly have. I often feel they have all the drudgery and I have all the fun; but their turn will come.

I have also been most highly favoured in having had the advantage of life-long friends to work with in almost every department.

My surveyors, Messrs. Corderoy & Selby, have worked with me from the very beginning. We all know the invaluable aid surveyors give us in the preparation of the indispensable quantities and measurements, and in the unravelling of apparently hopelessly tangled accounts, and in many other ways relieving us from much anxiety and leaving us free for other work. I often feel their work is hardly recognised as it should be.

In the main and great branch of our work represented by the builders I have also been most fortunate, and I owe them much in every way, especially for their skill in setting out the work and fulfilment of one's designs, for which, again, I fear we do not always give them full and adequate recognition. At no time, I believe, was better and more lasting work done than at the present time.

Very important also to us are our clerks of works: many have served me faithfully for years, and they are also represented here to-night, for they also have materially aided to the event of this evening.

Then there are a crowd of craftsmen and artificers to whom I am greatly indebted for many years of highly skilled assistance carefully rendered, but whom it would be impossible to mention in the time at my disposal, though I hope it may appear to you but right and just that I should make this slight acknowledgment of the invaluable assistance I have received on such an occasion as the present, and will pardon me for having, after all, spoken more of myself and my work than I had intended. I will promise, however, not to so offend again.

My predecessors in this honour—and I am amazed indeed to find myself in such fine company—have usually, I think, spoken on these occasions on the condition of architecture as they found it in their time, and the different phases they have represented, each no doubt firmly believing he was on the right track, from Cockerell, the first Medallist and the most refined of Greek architects; through Barry, the most refined Renaissance architect; and so on through the Gothic school of architecture to Gilbert Scott, Street, Pearson, and Christian, and now what do we find? Much progress, as it seems to me, much improvement, a closing up of the ranks, a desire to pick up the strain of English Renaissance where we last left it, giving it a distinct flavour of our times, making tradition our servant rather than our master; so that while we endeavour to make our buildings as beautiful as we can, we are determined at the same time to build sanely and reasonably; to make the necessities of the building develop the design, and not to be content until we have met all modern requirements of planning, and naturally combined these requirements with a fitting architectural exterior and interior, not ignoring what has gone before, but eschewing whatever appears to us to be evil, and holding fast only to that which is good; that I verily believe to be the tendency of to-day. I have always been an optimist in the work of my brother-architects, and am so still. I see in this tendency to work on parallel lines a possible, indeed probable, loss of individuality; and in a recent case, where I had some 130 anonymous designs before me, I found it impossible to recognise the authors by their drawings. I say there is a certain loss in this, but I believe it will be made up by a general improvement and levelling up of work executed.

We must believe in our art if we are to advance it; we must believe in and encourage each other's work if we are to go forward, as I believe we shall go forward; for there are signs of a greater pride of citizenship arising, and a dawning of belief in the necessity of the city beautiful as well as the city useful. Let us see that we are ready to realise these aspirations as they arise, for hard-headed, practical men are beginning to realise that noble dispositions in a town, noble streets and buildings, are an education as necessary for the higher development of patriotism and public spirit as good water and sanitation are necessary for the bodily well-being. A certain sinking of individuality may be necessary to secure the harmonious whole: this we must be ready to give; the general result on the city and on our building must be our sole and chief concern, and we must be content to sacrifice ourselves if necessary for the general good.

Will you pardon me if I quote Ruskin once more on fraternity of toil? He said in that famous lecture of his before the Architectural Association: "In those misty and massive piles which rise above the domestic roofs of our ancient cities there was—there may be again—a meaning more profound and true than any that fancy so commonly has attached to them. Men say their pinnacles point to heaven; why, so does every tree that buds and every bird that rises as it sings; but this they have of distinct and indisputable glory, that their mighty walls were never raised and never shall be but by men who love and aid each other in their weakness, that all their interlacing strength of vaulted stone has its foundation upon the strong arches of manly fellowship, and all their changing grace of depressed or lifted pinnacles owes its cadence and completeness to sweeter symmetries of human soul."

This, I take it, is the poetical way of saying we must pull and work together, look forward and not back, and believe in ourselves, in each other and our art; and this, I take it, is the main purpose of this Institute of ours.

It seems to me to-night as if it were but yesterday that I first commenced to practise, and yet this function reminds me that I am rapidly arriving at the other end. No matter, this is as it should be. We hear the next generation already trampling at our heels, ready to take up the work and to carry our art, as I believe, further than has been done before.

Mr. President, ladies, and gentlemen, I have trespassed on your time and patience too long. It only remains for me once more to thank you with all my heart.

9, Conduit Street, London, W., 24*th June* 1905.

CHRONICLE.

The Royal Gold Medal 1905.

The presentation of the Royal Gold Medal to Sir Aston Webb, R.A., was witnessed by a numerous assembly of members and their friends and distinguished guests, the presence of ladies among the visitors lending special grace and brilliancy to the function. Among the Hon. Associates who assisted at the proceedings the Royal Academy was particularly well represented. The President's Address was followed with manifest approval by the audience, and the enthusiastic reception accorded the Royal Gold Medallist himself testified abundantly to the popularity of the Council's award. The remarks which follow were made after the President's Address and before Sir Aston Webb rose to respond :—

Sir Lawrence Alma-Tadema, R.A. [*H.F.*] : Mr. President, Ladies, and Gentlemen,—As a member of the Royal Academy I feel I have the right to express to Sir Aston Webb, on behalf of our Institution, the great pleasure it gives us that a member of our body is so worthily recognised in his talent and in his endeavours to serve that great art of which he is such a distinguished representative. After the admirable Address of our President but little remains to be said. Discussing the event to take place this evening, however, a friend of mine remarked, "He has pretty well all now: what can they give him next?" I answered in all sincerity what I repeat now most heartily, "The continuation of that respect for the artist and for the man, of that brotherly love of his friends, his co-artists, which are his to-day."

Mr. Alfred East, A.R.A. [*H.A.*]: Mr. President, Ladies, and Gentlemen,—I should like to add a word to what has been said by Sir Lawrence Alma-Tadema in appreciation of this honour to our friend Sir Aston Webb, because I take it that the highest mark of approval of any artist is to gain the good opinion of those whose opinion he values. Our friend Sir Aston Webb stands in that position to-night. He appreciates, I am sure, most highly the honour which has been conferred upon him, because it comes from men whose work he appreciates and whose genius he honours. Our President has given us a record of such length and of such importance as any man might be proud of. We congratulate Sir Aston, too, very heartily, because this Medal carries with it the good wishes and high appreciation of all his brother architects. He is a modest man. He is a painter as well as an architect, I might tell you. I have seen his sketches, which are most excellent. He is always doing things, and you have to find them out. There is no young architect of promise but can feel the backing up, the influence, of Sir Aston Webb. He is a man who works. He is a man who believes in the present and the future; he does not rest in the past, however great it may be; he believes in the living present, and in the responsibility of his great art. We are all proud of the architecture of our country, and wish to see it make the progress which the Institute has always had in view. I, as a painter, feel it a privilege to be associated with this body, because the sister art of architecture is so noble, so inspiring. On our introduction to a city the first impression we gain of its culture, of its power, of its dignity, and of its history, is revealed in its architecture; we have to stay, to find the worth of its painting and of its literature. I can only say that those who have the privilege of Sir Aston Webb's friendship know him to be from the soles of his feet to the crown of his head a man who loves his work, who is loyal to his friends, and loyal to his art. I think he must feel this occasion to be the event of his life, and we all unite in congratulating him most cordially on the great honour that has been done him.

⁂ The portrait of Sir Aston Webb given with the present number is from a recent photograph by Mr. Fredk. Hollier, of Pembroke Square, W., who has kindly given permission for its reproduction.

Presentation of the Portrait of Sir William Emerson.

The formal unveiling and presentation of the portrait of Sir William Emerson (*President* 1899–1902) took place last Monday, following the proceedings in connection with the Royal Gold Medal. The portrait, which is the work of Mr. J. J. Shannon, A.R.A., was hung at the Royal Academy Exhibition of last year, and was doubtless already familiar to most of those present. It was subscribed for by members of the Institute, and the ceremony of unveiling and presentation was performed on behalf of the subscribers by Mr. T. E. Collcutt. The following is a note of the remarks on the occasion :—

Mr. T. E. Collcutt, *Vice-President*: Mr. President, Ladies, and Gentlemen, I feel sure that you will pardon me if I first express our satisfaction with and congratulate our President upon the felicitous Address he has given us on the award of the Gold Medal to our distinguished and lovable friend Sir Aston Webb. I now, Sir, have to perform another interesting ceremony—viz. to unveil and to ask you to accept on behalf of the Institute a portrait of our former President, Sir William Emerson. I am afraid I am lacking in words properly to express how much I feel the honour of being asked to make this presentation. It is, however, an honour that I value the more, as it permits me to express the very great esteem in which I hold Sir William Emerson—an esteem which I feel sure every member of the profession shares with me. I have had the privilege of working with Sir William on the Council and serving during his term of Presidentship; and I feel sure that he will always be remembered by his colleagues on the Council for the soundness of his judgment, for his tact, for his courtesy, and for the fearless manner in which he has expressed his views on controversial matters. As an architect, Sir William Emerson has made a name which commands the respect and admiration of his brethren. He is now engaged upon building the great memorial to our late Queen in India. We have no opportunity, of course, of seeing the building, and very few of us perhaps will ever see its finish; but we are able to judge, from the drawings and designs which Sir William has published, that the building when completed will be a fitting monument to a great Queen, and a lasting memorial to its eminent designer. I have known Sir William Emerson for a great number of years, and meet him very frequently in the company of other architects; and I feel that they will all agree with me in saying how much he has endeared himself to us by his geniality and goodness, and by those rare qualities which make him indeed a friend to all of us. I have now, Sir, to ask you to accept on behalf of the Institute this very fine portrait by a very distinguished artist of a very distinguished architect.

The PRESIDENT: I have great pleasure on behalf of the Institute in accepting this welcome portrait of our Past President, Sir William Emerson. It is a valuable addition to our fine series of portraits by the most distinguished painters of their day. Our appreciation of them must not be judged by the position they occupy upon our walls, for unfortunately through lack of room we are obliged to "sky" many of them; but we are looking forward to a time when we shall have rooms in which we can display our treasures with greater advantage, to our own pleasure as well as to the enjoyment of our friends and visitors. I must congratulate my friend Mr. Shannon on one of the most successful of his many wonderful portraits; for there we see our Past President as we have known him, in one of his most felicitous moments, and we can also admire him as a work of art. He appears to be gazing upon some large and important work which has been committed to him, and probably that is just the occasion when an architect looks his best! I believe I am only expressing the wishes of this Meeting in conveying the cordial thanks of the Institute to Mr. Shannon for his noble work and for the favour he has conferred upon us in undertaking it. It is my privilege to offer him a book containing reproductions of portraits of our Past Presidents, in which his own fine work will now be included. I will ask his acceptance of it as a memento of this occasion, and will at once put to the Meeting this vote of thanks which I believe you will be ready to accord with acclamation. [The vote was carried with loud applause.] I thank you, Mr. Shannon, on behalf of the Institute for your work and for honouring us with your presence this evening.

Mr. SHANNON, A.R.A., in a brief reply thanked the Meeting for their kind reception of his work. It had been, he said, a genuine pleasure to him, and he had felt it a great honour to execute the portrait for the Institute.

Illicit Commissions.

Several members have forwarded to the Secretary of the Institute a circular letter which they have received from a firm named C. Weeden and Co., of 323 Caledonian Road, N., who, after calling attention to their wares, say that they "can offer a liberal commission over and above the builders' discount for the privilege of the introduction to your client, the builder." The Institute would point out to such firms that every member signs a Declaration to the effect that he "will not accept any trade or other discounts or illicit or surreptitious commissions"; that, in view of the fiduciary relations between himself and his client, no honourable architect could possibly accept them; and that the recipients of such circulars as the one referred to regard them with extreme resentment. In the last words quoted from the circular the firm in question betrays a beautiful confusion of mind as to the relation between the architect and the builder.

The Training of Craftsmen.

In a Paper read before the Building Section of the Association of Teachers in Technical Institutes Mr. E. L. Bates discusses an urgent need of the moment—viz. a workable scheme for the more thorough training of our building craftsmen. Our aim, he contends, should be to make the rank and file of our workmen equal to the best of any other nation and to produce at the same time a number of man superior even to these. It is indispensable to the man who would become master of any craft that he should know thoroughly the elements of both the principles and practice of the craft, and the right use of the materials he has to manipulate: he should receive tuition in manipulating tools and materials from a competent and responsible craftsman for a period of time sufficient to make him a skilled handworker.

Dealing with the question as to how such training can be brought about, Mr. Bates takes us back to the fourteenth century and shows us something of the methods of the ancient craft-guilds. The masonry work of that period proves the existence of a race of exceedingly able craftsmen. The Deed of the Masons' Company of London had stringent rules as to proficiency and training. Thus: "If incompetence is proved against any mason, he is fined by the Guild; a second conviction is followed by a second fine, and a third by expulsion from the Guild and the forswearing of the craft for ever." No one was allowed to enter the craft except through the channel of apprenticeship. Every apprentice was bound for seven years, and masters who took apprentices for less were fined. Masters were obliged personally to instruct their apprentices. The Deed says: "No apprentice or journeyman is to be employed except in the presence of his master, or before he has been properly instructed, and any defaulting master is liable to fine by the Guild." The order of the Masons' Guild fixing the term of apprenticeship at seven years was among the things codified in the Statute of Apprentices 5 Eliz. c. 4, which remained in operation until its repeal, through the agitation of the masters, in 1814. The workers, it seems, realised the value of the time-honoured seven-years term, and strenuously opposed the repeal. Hansard reports that 2000 people petitioned in favour, and 300,000 against it! After the repeal of the statute short-termed indentures became the rule, and no attempt was made to give to a youth a comprehensive knowledge of a craft. In the late "sixties" international competition began to be felt, and the shortcomings of our own workmen compared with the more carefully and better-trained men of Germany became evident. Schools of Art and Polytechnics were started as training-grounds for craftsmen, and the average employer has come to look upon them as places to which he can refer his apprentices and young workmen for information indispensable to good workmanship. "No sooner has some advance been made in the work done at a Polytechnique," says Mr. Bates, "than we find the apprentice-master keeping the youth engaged on work of little or no educational value, and transferring his obvious responsibility to the school. This, notwithstanding the fact that the services of the youth are being given for little money-value in order that he may receive a craftsman's training." There is of course no compulsion to attend these schools. The only time for such attendance is after working hours, and it is not to be wondered at that the class register contains a large percentage of absent marks. It is the diligent few only who gain any advantage from these institutions.

Mr. Bates wishes to bring home to the master his own responsibility in the matter and the necessity for his making some sacrifice as well as the worker. Hand-training must be carried on concurrently with mental training. The latter, however, must not be so subordinated to the former that a lad can only commence the study of theoretical work after having been exhausted by a hard day's work of manual labour. He suggests the master should allow his apprentice or improver, say, two hours' leave on the morning following each evening attendance at a technical school, and pay the same amount of attention to the regular reports of the class teacher as he now pays to the reports of the works foreman. There should be no break in the continuity of the craftsman's education, and no specialising should be allowed until a broad foundation of ordinary scholastic education has been carefully laid and well consolidated. Mr. Bates lays stress on the necessity of the master attaching his apprentice to a competent and responsible craftsman, part of whose work must be to instruct the lad properly and continually in the use of tools and the various details of his handiwork. The apprentice, it seems, is usually left to pick up his knowledge as best he can, and thus his progress depends more on his perspicacity than upon his industry, and he often contracts slovenly and incorrect methods which cling to him all through his career.

In order to secure for the rank and file the thorough training necessary for the equipment of a well-skilled craftsman Mr. Bates suggests a sort of combination of the modern scholastic system at present in vogue in Germany with that of our own masters of the fourteenth century—for what was necessary to make craftsmen then is in the main necessary to-day. We can only produce craftsmen by giving to them such practice with tools on actual work as will enable them to acquire a skilled handworker's cunning. Mr. Bates asserts unhesitatingly that the systems in vogue in the technical establishments of Germany, Switzerland, and the United States of America, whilst turning out vast numbers of exceedingly able men, highly trained in technical science and well qualified to fill important positions in the industrial world, do not, and cannot, produce the race of workers indispensable to the success of a great industry like building. An intimate acquaintance with the prevailing industrial conditions, such as can only be derived from experience on actual work, is invaluable, and essential to success. Craftsmanship is not, however, merely a question of manual dexterity. The hand that holds the tool is the servant of the mind, and, other things being equal, the better the mental training of a craftsman, and the more complete his knowledge of the materials he manipulates, the greater is his skill with tools. Hence the many advantages that can be derived from the scientific knowledge which is now available should be utilised to the full.

Mr. Bates offers the following suggestions:—A lad intended for a craftsman should leave the primary school at thirteen years of age, as at present.

During the last year of his attendance at the primary school he should pay weekly visits to workshops and works in progress, in the company of the teacher. He should enter a secondary school for a period of two years. At this school no technical or scientific work other than that understood to form part of a general and liberal education should be done. During the two years' attendance at the secondary school the weekly visits to workshops &c. should be continued. At the age of fifteen years he should enter a day technical school for one year. He would at this time select the craft he intends to follow, and should receive instruction in the science subjects especially important to that particular craft. But the instruction must be on the broadest possible basis, no specialising being permitted. Meanwhile, he should continue his weekly visits, confined, however, to such places as may bring to his notice the practice of his prospective craft. At the age of sixteen years the lad would be bound to a builder or the works department of a municipality for a period of five years, his employer undertaking to provide an efficient instructor, and to arrange for the apprentice to attend at a technical (day) school during the whole of one educational term in each of the first three years of the apprenticeship. In addition to this the apprentice should be required to attend classes at an evening technical school on two evenings per week during six months in each of the first three years of his apprenticeship. At the end of the third year, the compulsory attendance at school would terminate, so far as the craftsmen are concerned; but such men as should pass a qualifying examination would be at liberty to enter a technical college for two, three, or four years; he who so enters a college must agree to serve, with the tools, for a period equivalent to the unexpired indenture period, when he leaves college. These latter men, with their university education and their real practical training, would be able to fill many important positions in the professional world with credit to themselves and advantage to their employers, and would furnish our technical schools with a more valuable class of teacher than can be found elsewhere in the whole world. The nation that is first provided with a plentiful supply of teachers of this class to train its craftsmen will easily distance its competitors. We shall most of us agree with Mr. Bates that the problem before us is both urgent and difficult, and a satisfactory solution can only be arrived at through the good sense and the hearty co-operation of all who have the subject at heart.

The most Ancient Temple at Thebes.

Messrs. Edouard Naville [*Hon. Corr. M.*] and H. R. Hall communicate to *The Times* of the 22nd inst. an account of the excavations of the Egypt Exploration Fund on the site of Deir el-Bahari which were begun last year. With the help of Mr. E. R. Ayrton, who worked with them throughout the season, and of Mr. H. Garnett-Orme in the latter part of it, they have now cleared two-thirds of the temple of King Mentuhetep III. of the Eleventh Dynasty (B.C. 2500), the oldest temple at Thebes. The following extracts from the distinguished explorers' communication show that the discoveries of this year raise some interesting questions as regards the development of Egyptian art and architecture:—

> We have unearthed the remains of a building which, at present, is unique in its type. It consists of a rock-platform, which was reached by means of a ramp, like the terraces of the neighbouring temple of Queen Hatshepsu, of the Eighteenth Dynasty. At the top of the ramp a granite doorway (of which the threshold only remains) led to a triple row of octagonal sandstone columns. . . . The columns formed a double peristyle, which ran along the four sides of a central construction, the nature and purpose of which is not yet absolutely settled. This construction is a rectangular block, the outside of which was formed by a casing of large limestone slabs, beautifully joined and resembling those of the facing wall of the court discovered last year. Behind the casing is a wall of rough and heavy nodules of flint, and the middle is filled with rubbish and loose stones, so that the whole was a compact mass. . . .
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> This monument may have marked the presence of a tomb-chamber at a great depth below in the rock, which could not be reached from the top, but only by a side-passage opening some way off, or it may have been merely an architectural survival, a kind of atrophied pyramid retained in the design of the funerary temple, and indicating no tomb. This supposition that a small pyramid stood on the central erection squares best with the Egyptological evidence, which demands a pyramid here; but the effect of the whole must have been peculiar, since we have also an absolutely unusual arrangement: the pyramid-base was surrounded by a triple row of columns, which certainly supported a ceiling and formed a hypostyle passage or colonnade, which must have been quite dark, or nearly so (like the ambulatories surrounding the shrines in later temples), for the outside was closed by a thick wall, the wall which was decorated with the sculptured reliefs found both last year and this. It would seem, judging from the appearance of the columns, that the ceiling corresponded to the height of the platform, but the ruined state of the temple does not allow us to assert this more definitely. In any case we have here a new and interesting fact in Egyptian architecture. . . .
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> The excavation of the temple began last year with the discovery, on the north side, of a court, with facing-walls of magnificent masonry, separating it from the temple of the Eighteenth Dynasty. On the opposite side of the platform, the southern, we have this year found another court, corresponding to the other one, and bounded by the southern horn of the Deir el-Bahari cliffs. So that we now see that the whole width of the space within the circus of cliffs was occupied by the two temples, which at the time of the Eighteenth Dynasty the visitor coming from the Nile saw before him, rising side by side, against the background of the cliffs. It is the aim of the Egypt Exploration Fund to enable the modern visitor to see the same sight, and it is our wish to enable him to do so as quickly as possible. Three sides of the platform have been laid bare; what has to be done now is to excavate the back part of the temple and to ascertain how far it goes back westward towards the mountain; whether it joins this directly or whether there is something between. At present we can see a few columns and remains of a building of the Eighteenth Dynasty; we may discover the

passage to a shrine, perhaps even the shrine and rock-cut tomb of the King himself.

In the Southern Court we found remains of a gallery of statues which one of the kings of the Twelfth Dynasty, Usertsen III., had erected in his own honour. There were at least six standing statues of black granite. They probably stood on the platform, and were broken and thrown down into the court. All have been broken off at the knees, and the lower parts of all have disappeared. Four have the heads in a fairly good state of preservation, except the nose. They are all alike, showing that they are a portrait. Perhaps a certain difference between them might suggest that they represent the King at different ages. They are very good specimens of the Royal type of the Twelfth Dynasty, a thoroughly Egyptian type. These are also good specimens of what we might call the Theban school of sculpture. This is a point of view which has too often been left in the shade by the students of Egyptian art. Art has too often been considered as being uniform through the whole country, and its various modifications have been classified chronologically, while no sufficient account has been taken of local tastes and local traditions which might preserve in Egypt longer than anywhere else, owing to the conservative character of the Egyptians. . . .

These discoveries of antiquities of a later period are interesting; but what gives to this excavation its importance is that all belongs to the Eleventh Dynasty. Of the art and architecture of this dynasty but little was known before these two last seasons' work; but now we have a more intimate knowledge than ever before of the peculiar character of both, and of the perfection of workmanship to which the sculpture of this early period attained. This, the first temple yet discovered of the Middle Kingdom period, and the oldest temple in Egypt of which so much has been preserved, is of a character quite different from any other ancient building to be seen elsewhere in the valley of the Nile. Besides, history has gained from this work the name of at least one new king, possibly the names of two new kings, of this dynasty. This is enough to show how important it is to science that this excavation should be completed as soon as possible. The western end of the temple remains to be excavated. That further important results will be gleaned and more interesting antiquities found we do not doubt. We commend this work to the friends of Egyptian antiquity, whose monetary support could not be given for a worthier object, and we trust that the Egypt Exploration Fund will be able to find the necessary resources for completing the thorough exploration of the oldest temple at Thebes.

The Egypt Exploration Fund's exhibition of the temple-reliefs, statues, and other objects discovered this year at Deir el-Bahari will be held in the rooms of the Society of Biblical Archæology, 37 Great Russell Street, W.C., during next month.

American Demand for a Ministry of Fine Arts.

The members of the American Society of Beaux-Arts Architects have recently passed the following resolution:—"Whereas, history teaches that the most enduring records of the greatness of a nation are its monuments of art, and that the cultivation and development of the fine arts are of paramount importance to the progress of a people; and whereas, to successfully foster and develop the artistic tendencies of a community these tendencies must be unified and nationalised; be it therefore resolved that it is the opinion of the Society of Beaux-Arts Architects that the time has come when it is eminently fitting and the bounden duty of the Government of the United States to officially recognise these facts and to undertake, by the establishment of a department of the Government, the direction of this fundamental part in the evolution of its people."

A London Museum.

Mr. Emslie J. Horniman, late Chairman of the London County Council Historical Records and Library Sub-Committee, in a letter in *The Times* of the 22nd inst. supports the proposal for the establishment of a London museum, and hopes that accommodation will be provided for it in the new County Hall when it is built. A building appears to be wanted in which to exhibit the many objects already accumulated by the London County Council. For some years past buildings about to be demolished by the Council have been searched, and a surpassingly interesting collection of carved woodwork, balusters, chimney-pieces, plaster ceilings and cornices, lead cisterns, ironwork, &c. have been preserved by the Council at the mere cost of removal. At Spring Gardens there is a very good collection of prints, maps, books, &c. dealing with London topography, besides many records and Court rolls; the last named, dating from 1394, are now being printed. Not only are all objects preserved that can be, but drawings and photographs are taken of everything of interest before houses are pulled down by the Council, and as far as possible the same is done for buildings belonging to private owners, and a record kept of any archæological discovery. A London museum would unquestionably be of value and interest.

MINUTES. XVI.

At the Sixteenth General Meeting (Ordinary) of the Session 1904–05, held Monday, 19th June 1905, at 8 p.m. —Present: Mr. John Belcher, A.R.A., *President*, in the Chair, 48 Fellows (including 15 members of the Council), 42 Associates (including 2 members of the Council), 1 Hon. Fellow, 5 Hon. Associates, and numerous visitors—the Minutes of the meeting held Monday, 4th June 1905 [p. 524], were taken as read and signed as correct.

The following members attending for the first time since their election were formally admitted by the President—viz. James Jebusa Shannon, A.R.A., *Hon. Associate*; Frederick William Marks, Robert Frank Atkinson, William John Gilliland, William Pywell, *Fellows*; John Hindle Higson, *Associate*.

The President delivered an Address on presenting the Royal Gold Medal for Architecture to Sir Aston Webb, R.A., *Past President*; and Sir Lawrence Alma-Tadema, R.A. [*H.F.*], and Mr. Alfred East, A.R.A. [*H.A.*], having made some remarks in reference thereto, Sir Aston Webb delivered an Address in acknowledgment.

Mr. T. E. Collcutt, *Vice-President*, unveiled and formally presented to the Institute on behalf of the subscribers the portrait of Sir Wm. Emerson (*President* 1899–1902) painted by Mr. J. J. Shannon, A.R.A. [*H.A.*].

On the motion of the President a vote of thanks was passed by acclamation to Mr. Shannon for undertaking the portrait above mentioned, and as a memento of the unveiling the President presented him with a copy of the *Album of Past Presidents' Portraits*.

The proceedings closed at 9.30.

Astley Castle, Warwickshire. From a Drawing by the late W. Niven.

THE EVOLUTION OF DOMESTIC ARCHITECTURE.

By R. P. S. Twizell [*A.*],

LECTURER ON ARCHITECTURE, ARMSTRONG COLLEGE OF SCIENCE, NEWCASTLE-ON-TYNE.

Read before the Northern Architectural Association 17th January 1905.

THE title of this Paper, "The Evolution of Domestic Architecture," is to some extent a misnomer, for, however pleasant a task it might be attempting to follow the human dwelling through all the changes of its existence, yet, owing to the great difficulties attending such an undertaking and the necessary limits of the Paper, I am confined to a description of its birth and development in this country; and even here I am restricted, as lack of time makes it impossible to describe or even speak of the several variations of house plan that are to be found, more particularly in the sixteenth, seventeenth, and eighteenth centuries, and I must therefore be contented with trying to follow from its source the main current of domestic house planning and take no notice of any tributary stream which may flow into it during its long and eventful course.

Roman civilisation and building methods appear to have left little impression on the early people of England; and when the conquerors had left the country the villas which remained, consisting of several buildings usually connected with covered passages, and all surrounded by a wall, were used by the Frankish settlers of a later date for housing themselves and the villains who tilled the ground.

The earliest forms of houses in Great Britain were of round or oval shape, built of wood and basket-work and made wind and water tight by a plastering of mud clay, the top of the hut being thatched with reeds or some such material. Light would be admitted in the door and by the hole in the roof through which the smoke escaped from an open fire in the centre of the floor. At a later date houses were built of stone in imitation of these round huts.

The rectangular house was the next form, and this appears to have been evolved from the temporary shelters which it was usual for herds to build. It was formed by erecting at a convenient distance apart two wooden trusses or forks, something like the letter A, and extending a ridge pole from the apex of one truss to that of the other, and covering and finishing this framework in a manner similar to that of the round houses [fig. 1]. When this shelter form of house came into ordinary use as a dwelling and needed enlarging, it would be extended to any length by adding the required number of trusses, and also be widened to give additional room by forming outshots at the sides, sometimes extending the whole length of the structure, constructed of posts and finished as before with a plastering of clay.

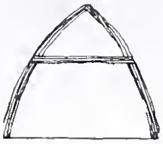

FIG. 1.

Another method resorted to, to gain increased space, was to make the walls of these buildings perpendicular; and this change was accomplished by lengthening the collar or tie beams of the trusses, so that it became equal in length to the base of the wood truss, and on the ends of these extended collars wood beams were laid, and a wall of posts or stone, or both these materials together, was built up to this level. The outer roof was then formed by rafters laid from this wall to the ridge [fig. 2].

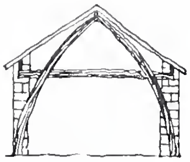

FIG. 2.

The materials employed were always those which were cheapest and most readily procured in the district, and in many cases stone was only used when wood could not be procured, the earliest construction being to weave reeds or brushwood in and out of the posts, and a later one to fix laths or wattles to them; and in both cases these were covered with a thick coating of clay, generally mixed with cow-dung.

The typical plan of a simple dwelling-house contained a hall or house part, bower, and a buttery or storeroom.

Fig. 3 is the plan of a thatched house built in one bay with outshots such as would be erected by a landowner of Saxon times. The house part consists of a single bay about 16 feet long by 12 feet or 13 feet broad. A door opening connects the house part with the buttery outshots. In most cases these butteries would have no window openings. At the opposite side of the house part a door leads into a chamber the floor of which would be made of clay, as that of the former was.

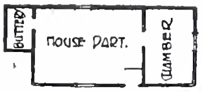

FIG. 3.

In these dwellings the hall was the sleeping apartment; but as it contained the fire the food was cooked there. The bower was the women's apartment, and used by the mistress for sleeping purposes.

As was the case in other countries, it is probable that in the largest form of dwelling the cattle were housed in the outshots next to the hall.

As both Saxons and Normans had originally built much in the same style, it is questionable if a substantially built Saxon manor house or Norman hall of the eleventh and twelfth centuries would have differed materially from each other, any more than a Saxon house would have differed from a Norman house of the same period, except that the latter probably had upper chambers, which were uncommon in England.

For descriptions of some twelfth-century manor houses I am indebted to a little book, *The Evolution of the English House.**

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* *The Evolution of the English House.* By S. O. Addy, M.A.

The manor house of Sandon, in Essex, consisted of a hall, a bower, and a latrina. Adjoining it were ample storehouses for grain, an ox-house, a wash-house in which clothes were trodden in vats by the feet, a brewery, a pig-sty, and a hen-house. In the same century the manor house of Kensworth, in Hertfordshire [fig. 4], consisted of a hall 35 feet long, 30 feet broad, and 22 feet high, viz. 11 feet to the tie-beam and 11 feet from the tie-beam to the ridge-piece. There were two other rooms, viz. the domus or entrance hall and the bower or women's apartment (thalamus), the domus standing between the hall and the bower. This latter apartment was 22 feet long, 16 feet broad, and 18 feet high, viz. 9 feet to the tie-beams and 9 feet from tie-beam to ridge-tree. The domus was 12 feet long, 17 feet broad, and 17 feet high, viz. 10 feet to the tie-beam and 7 feet from the beam to the ridge-piece. Besides these rooms there was an ox-house 33 feet long, 12 feet broad, and 22 feet high, with a lambcote 24 feet long, 12 feet broad, and 12 feet high. The buildings of the manor house were so arranged as to form a quadrangle or courtyard, and the barns were often of great size. If we may take these as typical examples of a Norman manor house, it would consist of an entrance porch or domus with a hall on one side and a bower on the tower.

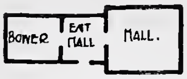


FIG. 4.—CONJECTURAL PLAN OF KENSWORTH.

The evolution of the chimney is a very interesting question. In the early huts the fire was placed in the middle of the floor, and having regard to this central position we might reasonably assume that this continued to be a position it often occupied. In 1538 Leland says that he "muche notyd in the haulle of Bolton (Castle), how chimneys were conveyed by tunnells made on the syds of the wauls, betwyxt the lights in the haull; and by this means and by no covers, is the smoke of the harthe wonder strangly convayed."

Later writers in the years 1577 and 1626 give evidence to the fact that it had been an ordinary custom to place fires in the middle of some of the rooms. The hearths to hold wood fires were large, requiring a big, spreading canopy over them to collect the smoke; and by reason of their great projection it was necessary to give them support, either by bringing the sides down to the floor as walls or supporting the corners of the canopy on posts, making a sheltered corner in the hall, now known as the ingle.

Many early flues, even in large houses, were made of wicker, mud plastered, and in the *Ordinances of the City of London*, compiled A.D. 1419, it was forbidden henceforth to build any chimneys but of stone, tiles, or plaster.

As a rule, the smaller the window the older the house. In the first instance they were probably inserted for ventilation, as the word "window" means "wind-eye" or "wind-hole," as though its purpose were to admit air. This is to some extent borne out by the word "loop-hole" or "leap-hole," an aperture through which smoke could escape or air could enter. Considerations of defence, and in later times the dearness of glass, would also be reasons for keeping them small.

When we consider the essentially military domestic buildings of the twelfth century, we find that the building of strongly fortified keeps with a courtyard containing offices &c. and surrounding walls has in it the beginnings of a plan of domestic establishment whose completed growth is seen in the large quadrangular house plans of the late fifteenth and early sixteenth centuries. A Norman castle was a dwelling built primarily for defence, and was therefore constructed as strongly as possible, and secondly for convenience. It had a public character, which is shown by the fact that it was maintained by a tax levied on all who lived within a certain radius, and was used by these people as a place of refuge during times of forays and plunderings. The keynote of the building is known as the keep (in which the principal apartment was the hall on an upper floor), a plain square tower which was, wherever possible, built on a rock or steep hill, and stood in the middle of a courtyard wherein were wood lean-to sheds, housing for men at arms, stables, and offices of different kinds, encircled by a high massive wall, in which were gateways and watch turrets, and all surrounded by a moat and earthworks. The watch towers would probably be occupied by officials, and their internal arrangements would be of a domestic character. In course of time the wood buildings in the courtyard made way for stone, and superior apartments were built along the line of the fortified walls, and these in times of peace were often occupied by the baron himself.

With the thirteenth century we have the country becoming more settled. Many of the castle keeps were being deserted as places of residence, although they could still be used for purposes of defence, and instead of them the various buildings of the courtyard were beginning to be gathered together and raised in importance, and the officials, as well as retainers, housed in this part.

A group of buildings such as this consisted of a hall, with drawing-room or solar or bower, kitchen, larders, brewhouse, bakehouse, servants' apartments, stables, &c., and, as we shall find was the case in manor and country houses, the hall also becomes here the chief feature of the dwelling, and continued to be so during the whole of the Middle Ages. The entrance was usually by a vestibule formed of screens, which in later times frequently carried a platform or musicians' gallery. In it the family and household took their meals, the chief members sitting at a table placed on a platform or daïs the width of and at the far end of the room. The hall was used for many purposes: during the daytime justice was administered here by the owner, as well as being a place for meals and the evening's dancing and games of all kinds; and in some of the smaller residences, where no special apartments were provided for the servants, the household, with one or two exceptions, slept here on shake-down beds. The room of next importance was the solar, with drawing-room or bower, which was generally built behind the daïs end of the hall, but on a higher level, and usually over cellars. It was the private family apartment or sleeping-room, more particularly for ladies' use.

In the case of large houses, where the lord had also a room for his own use, the term "solar" seems to have denoted this particular apartment, as in the same way the term "bower" refers to that of the women. Guests were probably housed in the stables and hall. In houses of some pretension a small chapel or oratory was added to the usual accommodation.

Numbers of the smaller tenants of the great barons were now beginning to build on their own account, and these manor houses followed in general the plan of the previous century, as it provided all the accommodation needed.

Evidence goes to prove that wood was still the chief building material, the wooden framework being finished with laths and mud plaster, usually whitewashed inside and outside; at the same time wood and stone were used together, and in fewer cases stone alone. Little is known of the use of bricks.

Open timber roofs of high pitch were covered with wood shingles or stone tiles, while thatching was regularly used. Windows were of one or two lights, generally with pointed heads; while glass was during this century very sparsely made use of for the first time in domestic work, wooden shutters being most often used, and the inconvenience from draughts being provided against as much as possible by placing the windows high up, especially in halls.

Fireplace arrangements had changed little during the previous hundred years, the usual construction still being wood and wood-plaster; but some are carefully built in stone and finished with elegant mouldings and carvings of the period, smoke escaping through louvres in the roof of the hall as well as by flues and chimney-stacks from the fireplaces of the other rooms.

As a rule the principal entrance to a manor house of this date, as in the twelfth century, was by an external staircase of wood carried on a wall and covered with a wood roof, and often landing under a wooden porch at the door of the building.

The ground floor was most often made of earth or clay well beaten down and covered with straw, while in some few superior buildings it would be laid with boards, as was the case with the upper floors. Later in the century tiles began to be put to this use.

Between the years 1216 and 1272 was made the first recorded attempt at underground drainage.

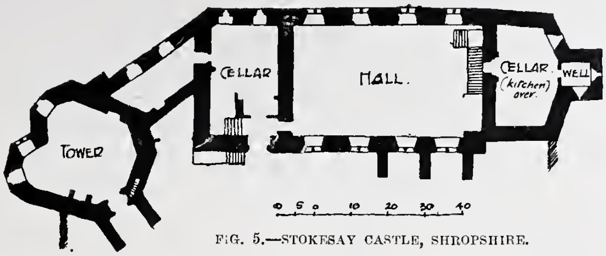


FIG. 5.—STOKESAY CASTLE, SHROPSHIRE.

The remains of the thirteenth-century buildings are scanty, as the vast majority of them would appear to have been constructed of wood; but among others we have Stokesay Castle, Shropshire [fig. 5], a very good example of a large manor house. After crossing the surrounding moat and entering through the gateway into the courtyard, we have the house facing us on the west side, on the south side of which is a many-sided tower standing free except for a covered passage connection to the main building, which latter is of the usual type of plan of high central hall, with a cellar at either end, over which are the solar and kitchen respectively, with floors at a higher level than that of the hall. There are three entrances to the house, exclusive of the tower, the principal one being at the north side of the hall, the second into the south cellar and by a staircase into the solar over, while an external stair also gives admittance to the same room.

In our own county of Northumberland we also have, at Aydon Castle, a particularly interesting example of a fortified border manor house of late thirteenth-century date [fig. 6]. The general plan of the enclosed space is an irregular pentagon, having the main buildings with its chief apartments on the south and most protected side.

The enclosed site is divided by walls into an outer and inner bailey and an enclosed court. The house was built with two floors, the lower or ground floor consisting of vaulted stores and cellars with entrance from the courtyard, and the upper floor, to which access was gained by an external stair, containing the hall, withdrawing-room, kitchen, and lord's chamber or solar.

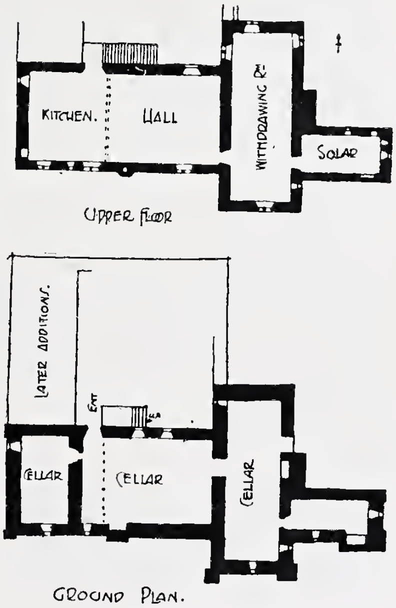


FIG. 6.—AYDON CASTLE, NORTHUMBERLAND.

The fourteenth century brought with it a continuous flourishing building period. Architectural forms were reaching a high state of perfection, and lent their aid to the enrichment of domestic as well as ecclesiastical architecture. The type of a keep castle was gradually dying out, except in border counties, and the building block beginning to assume a domestic as well as military appearance. No material change was made in the rooms or the uses to which they were put, but a better knowledge of good planning was being acquired, and ingenuity being displayed in overcoming difficulties of plan and construction with an endeavour to increase comfort.

Documentary and other evidence shows the usual plan of fourteenth-century manor houses to have been a simple parallelogram with or without side extensions. According to an old building agreement, the manor house at Lapworth, in the county of Warwickshire, was to be built of freestone, to be 40 feet in length between walls and 18 feet wide, and consist of three rooms, gable walls to be 3 ft. 6 in. thick, the front and side walls 2 ft. 6 in. The doorway was to be in the middle, and on one side was to be a base chamber with fireplace and wardrobe, with properly fitted doors and windows, and on the other side of the doorway was to be a second chamber with doors and windows, but having no fireplace. These rooms had to be 11 feet high, and over them was to be built an upper chamber or solar 40 feet long, 18 feet wide, and 9 feet from floor to ceiling, and having two fireplaces and two wardrobes.

Many houses of this date have a small square tower attached to them, denoting rank as well as being a place of security.

In Northumberland, as in other border counties, we find houses built in tower form, several stories in height, having windows on all four sides and a staircase contained in one of the angle turrets. They were usually surrounded by a moat, which also encircled the wooden minor offices and stables. An example is Langley Castle, Northumberland, built in the latter half of the fourteenth century. The central space is oblong, about 80 feet by 24 feet internally, and consisted of four stories.

Similar dwellings of a small class, common to the Borders, are known as pele towers. At Corbridge-on-Tyne we have a well-preserved example of a pele dating from the reign of Edward I., while the castle at Belsay is probably the finest pele tower in the county, with additions of later date.

The larger houses of the period have a castellated appearance, the battlements and tower being conspicuous features with loop-holes dotted here and there. Entrances are either on the ground floor level when the hall is placed there, or by means of an external stone staircase when the hall was on the upper floor, as at Belsay Castle.

When we consider the individual rooms of the houses of this period we find that the hall still remained the principal feature, with its position in the centre of the building; that its height was equal to the ground and upper floors, and that the roof was of open timber work, while the hearth was still often put in the middle of the floor. At the end farthest from the entrance was the wood daïs, the remainder of the floor being covered with stone or tiles. Windows were becoming much larger and being divided into two and three lights, with mullions, transoms, and tracery. At the entrance end of the hall was the vestibule screen with a minstrels' gallery over.

In the solar and bedchambers different small improvements were effected to increase comfort, some of the windows of the latter rooms being filled with glass; while near at hand would be a small lavatory room, more particularly so in large residences.

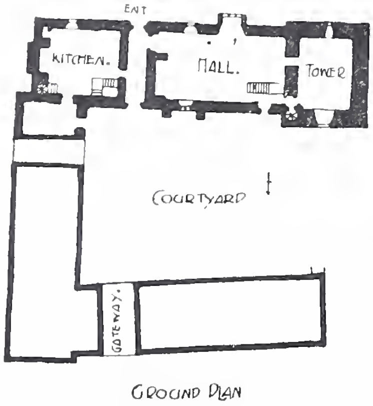


FIG. 7.—YANWATH HALL, WESTMORLAND.

Wardrobes or closets for clothes were much used in the thirteenth and fourteenth centuries, and were often put on the ground floor, occupying part of the space under the solar.

The kitchens of large residences were sometimes octagonal in shape as well as being rectangular, often of great height, with vaulted roofs, and had much more convenient cooking arrangements than in the previous century.

Wood was still very extensively used as a building material, but existing examples of stone buildings of this time are more numerous than those of the preceding centuries.

The fourteenth-century hall of Yanwath, near Penrith, Westmorland [fig. 7], forms three sides of a court, the wall or buildings which must have formed the fourth or west side being destroyed. The large gateway into the courtyard is on the north side, and facing it on the south is the hall with a large square tower on the western side of it. At the eastern side is an entrance passage the width of the hall, and dividing it from the kitchen. The two remaining sides are at present used as farm buildings, but were probably originally used as living-rooms.

The tower, which is the earliest part of the house, was in all likelihood a fortified pele tower, the remainder of the building being added a little later. The height is divided into three stories, having a turret staircase, the family living-room evidently being at first on the top floor. After the additions a staircase would appear to have connected the hall and second floor, this latter being then used as the withdrawing-room.

In the fifteenth century the military character of the castle is still seen, but combined with an evident appearance of domesticity, more particularly in counties that are not on the Borders. The desire for comfort was increasingly manifested, and in quiet districts the manor houses were becoming convenient unfortified dwellings.

Trade and enterprise were making the country prosperous, and middle-class houses possessed luxuries which previously could only have been found in those of kings. The establishments of large landowners were being curtailed, as large bands of armed retainers were not so needful as they had been.

Vassals and serfs were slowly acquiring rights and privileges and being housed in separate dwellings. These and other conditions all helped to lessen the need for the large hall which had been the dominant feature of every residence. Instead of being used at night as a general sleeping apartment, several bed chambers were added, sufficient for the family and those of the domestics who were not housed outside, and therefore from this time a continued decrease is noticeable in the size of the hall. The daïs was also sometimes omitted, and in place of it a small private drawing-room was added in which the family meals were served. The withdrawing-room also gained in importance, and was made larger; and extra apartments sometimes occurred, such as a special room for the lord, which, as a rule, was built over a cellar at one end of the hall.

The plan and arrangement of the houses and outbuildings of existing examples are most varied, but some general principle of arrangement may be gathered from them.

The space enclosed by the outer wall and moat was often of considerable size, and was divided into courts after the manner of the baileys of earlier times. Admittance was gained by a bridge with a gatehouse, and the first court entered contained the stables and farm buildings, if any. The inner courtyard, which was sometimes surrounded on all four sides with buildings, was entered through these buildings or by an inner gateway; in other cases the inner gatehouse forms one side of the court, having the offices facing it and the principal front between.

The ordinary entrance to the house was through the servants' court into the back door of the hall. In several cases the chief part of the house was raised on a substructure of vaulted cellars, which were sometimes half in and half out of the ground.

Little change is made in the features of the hall, which continues to be built in the centre of the block. In the screened vestibule three doors often occur, leading into the pantry, buttery, and kitchen passage to the servants' quarters. A serving-hatch for passing food from the kitchen to the hall may be seen in some examples. Over the screen a platform or music gallery was still to be found, the entrance to it being either by a small internal staircase or by one entering from the porch. A room was sometimes placed behind, with entrance off this gallery, and over some of the kitchen offices: it was probably used either as an oratory or music room. At the opposite side are still placed the family rooms, which like those at the kitchen side are comparatively small and low. The timber roofs of the halls are much more ornate than at any previous time, the best of these vying with church roofs in beauty, the earlier ones being panelled and divided into rectangular spaces with moulded ribs, having carved bosses at their intersections, multiplication of carving and tracery gradually following, the exterior covering being either stone slates or tiles. The interiors were hung with tapestry 8 feet to 12 feet from the ground; but near the beginning of the eighteenth century its place was taken by wainscoting. Magdalen and New Colleges, Oxford, and Trinity, Cambridge, are among several fine examples of the halls of this period.

Bay windows were introduced at the beginning of the fifteenth century, and soon became large and important features. They first occur at the principal end of the hall, until through time all its light is gained by means of them.

The positions of the fireplace are various, the chief being near the daïs and on the blank wall facing the windows.

I have previously spoken of the new use of private sitting-rooms, which must have been a useful addition to the house as a place of reception, and also on account of the increased comfort they gave. They were located at the principal or daïs end of the hall, and under the withdrawing-room. In other cases part of the hall with the daïs was screened off for the same purpose.

The hall, being usually raised above the ground floor by means of the cellars, was entered, as in the last century, by an external stone staircase or by a circular newel one. At the servants' end of the house, and near the hall screen, was generally a staircase for the use of servants. This is distinct from the staircase to the minstrels' gallery. Little change is made in the arrangement and position of the kitchen and offices. Corridors and passages are found to have been generally formed in the thickness of the walls, light being admitted either through squint-holes or windows.

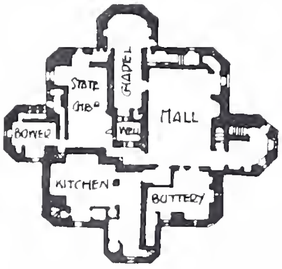


FIG. 8.—WARKWORTH CASTLE, NORTHUMBERLAND.

The castle at Warkworth [fig. 8] was originally built in the twelfth century, but the keep and house part were rebuilt on the old foundations during the fifteenth century; it exhibits a very convenient and well-arranged dwelling of square plan with projections on all four sides, and is two stories in height. The lower floor consists of vaulted cellars &c. The entrance is through one of the projecting sides, which forms a porch, and into a lower hall, which has doors leading into cellars, and into a guard-room with a dungeon under. Leading from the hall is the principal staircase, landing on the upper floor in a lobby near the great hall, at the inner end of which is the entrance to a chapel &c. The remainder of this floor consisted of a state chamber, kitchen, butteries, ladies' apartment, &c.

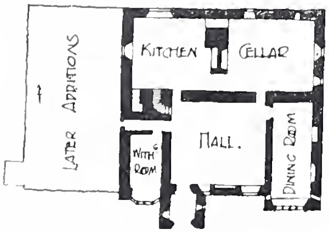


FIG. 9.—WANSWELL COURT, GLOUCESTERSHIRE.

Wanswell Court [fig. 9], a small manor house in Gloucestershire, built in the middle of the fifteenth century, consists of a hall with an outer porch, and, instead of the raised daïs of previous times, has a private dining-room or parlour formed out of the principal end of the hall, with a small withdrawing-room and stone staircase to the bedchamber floor on the opposite side.

This plan, in having a double range of rooms under one roof, shows an advance on most of the previous and some of the subsequent planning.

By the end of the fifteenth and beginning of the sixteenth centuries, the planning of substantial dwellings has resolved itself into two main types.

The first, usual to middle-class houses, had a hall with the withdrawing and family rooms at one end and the kitchen and offices at the other. The second type, which was common to larger houses, had the house built round one or more courts, but no particular attempt was made to obtain a symmetrical plan. This plan, which was the outcome of the castle with its outbuildings, offices, and walls of the previous periods, in outline consisted of an enclosed courtyard to which entrance was gained by a tall and imposing gateway, and in this court, either to the right, left, or facing the gateway, were the hall, kitchen, &c., the superior rooms, chapel, servants' apartments, offices, &c., forming the remaining sides. Oxburgh Hall, Norfolk, built of brick in 1482, is a good example of this type [fig. 10]. The entrance was by a bridge over the moat, under a tall and massive gate tower into the courtyard, on the opposite side of which was the principal part of the house, containing the hall with its entrance porch. To the right of the hall were pantries and kitchen, and in a passage common to both was placed the servants' stair; to the left and entering from it was the parlour. This house shows a great advance in uniformity over preceding types, but even here there are many features which make no particular pretence to perfect symmetry. Another good example, later in date [fig. 11], is Compton Winyates, Warwickshire, which like the last has a rectangular courtyard plan, but shows a house even more unsymmetrical than Oxburgh; and the entrance to the courtyard is through a gateway of much more domestic appearance than had the latter. Facing this is the hall, with the parlour or withdrawing-room, kitchen, &c. To the right of the courtyard is the chapel, occupying the whole side, and on the left, next to the kitchen, are the pantries &c. Behind the hall, and leading from it, is a large main staircase, and on either side of it and at the back of the hall are several family rooms, light to the former being therefore only obtainable on the courtyard side.

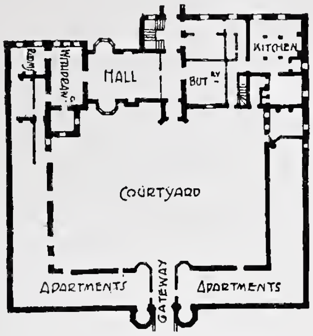


FIG. 10.—OXBURGH HALL, NORFOLK.

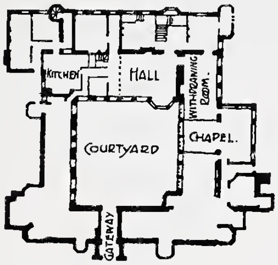


FIG. 11.—COMPTON WINYATES, WARWICKSHIRE.

This system of a double house or double range of rooms under one roof, previously alluded to at Wanswell Court, makes a decided advance in planning, being the abandonment of the single house and the adoption of the present modern system.

With the reign of Elizabeth came a great domestic building period. Never before had been such luxury in houses. Towns had become prosperous and merchants very wealthy, and forming a new class of landed proprietors with a desire to erect handsome mansions in all parts of the country.

The quadrangular plan of Henry VIII.'s time was adhered to for large houses, but the tendency was to avoid the enclosing of the courtyard on all four sides, and this meant the removal of the gatehouse; while to take its place a projecting entrance of some importance must be built on the central façade, and this gives us the familiar E plan of Elizabethan times. Another type, now known as the H plan, was evolved by extending the wings on either side of the central block. Both types of plan are the same in essence, and the houses having these outlines were not built with any intention of following the forms of these letters, and their doing so is merely a coincidence.

The system of planning began to be changed, efforts being made to obtain symmetry in the elevation, not merely in its large parts, but in window to window and door to door. The several parts of the house were connected together with passages and corridors, notwithstanding that the majority of the rooms still entered through each other, while economy of plan in the sense of avoiding waste space was not considered. The gradual disuse of the hall led to its now beginning to be used rather as a means of communication between the various apartments than as a living-room.

The chief additions made during the Elizabethan era to the plan of a house are, first, the long gallery and, secondly, the grand staircase. The former usually ran the whole of one side of the building on the upper floor, and its proportions vary considerably from the hall in being comparatively low and narrow in proportion to the length, which is often relieved by bay windows. The walls were wainscoted to the height of the ceiling, and this latter was usually enriched with elaborate plaster-work.

The grand staircase, which was put near the hall, had acquired such size and importance as in earlier times it had lacked, and was constructed with heavily carved oak newels, pierced balustrading, and rich carving.

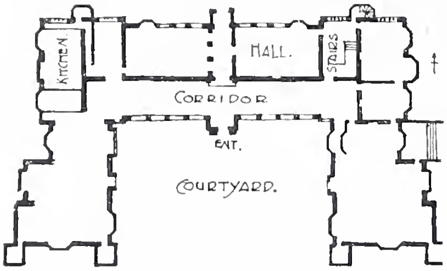


FIG. 12.—HATFIELD HOUSE.

Hatfield House, Hertfordshire, 1611 [fig. 12], is one among several examples of buildings with a plan of E shape. The entrance from the quadrangle leads into a long corridor on the ground floor, which at one end terminates at the chapel, kitchen, and offices, and at the other runs to the family rooms and principal staircase. Next to this latter is the great hall, which although the full height of the building is losing in importance. On the upper floor and over the ground floor corridor is placed the long gallery, terminating at either end among various chambers.

Holland House, London, may be taken as a fair example of an H-shaped plan, while Montacute House, Somerset, is a combination of both E and H.

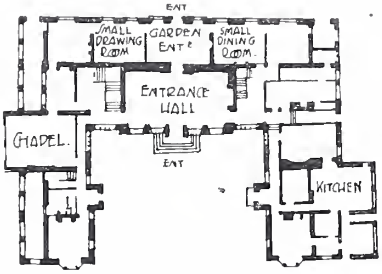


FIG. 13.—ASTON HALL.

Fig. 13, Aston Hall, Warwickshire, 1618–1635, is a late example of the period. There is no usual outer porch, and admittance is by a door between the forecourt on the east side of the great hall, 47 feet by 27 feet, which has now ceased to be a living-room. Directly opposite the entrance doorway is another opening in the main wall of the building, and this communicates with the garden entrance hall which lies between and gives access to the small drawing and small dining rooms. The north side contains the great kitchen, cellars, secondary staircase, &c., and the opposite block contains the chapel &c., with the grand staircase between it and the entrance hall. On the upper floor the long gallery is placed over the small drawing-room and garden entrance hall, and the great drawing-room goes over the chapel, the remainder of the apartments being chiefly bedrooms. This house, like others of the time, had several defects, the chief one being lack of compactness, as rooms are ranged round three sides of a court, and the long draughty passages with the kitchen and offices placed at a considerable distance from the living-room.

The classic principle of symmetry had been thoroughly recognised in Elizabethan times before Inigo Jones, after his studies in Italy in the seventeenth century, began to introduce his ideas into English buildings. The plan of house with three sides round a courtyard was gradually abandoned, and instead there was a concentration of most of the principal rooms into one rectangular block, and this was more particularly so in the smaller type of house plan.

Amesbury is a common arrangement of house plan of this period, the entrance hall and staircase occupying about one-third the area of the building site. The entrance hall, 35 feet by 22 feet, the height of one story only, is gained through a projecting porch. Directly opposite is a door leading into a cross-corridor with the staircase, which is still a distinctive feature. The door to the right of the hall led into the small dining-room with kitchen behind, and that at the left into a small drawing-room with offices, back stairs, &c. behind, connected to the cross-corridor. The first floor contained a suite of reception rooms, the principal one of which, known as the saloon, was placed over the entrance hall. The sleeping apartments were placed on the second floor.

Raynham Hall, Norfolk [fig. 14], is a similar kind of house to the last, but somewhat larger, and also attributed to Inigo Jones.

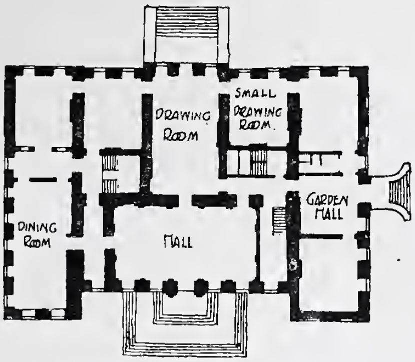


FIG. 14.—RAYNHAM HALL, NORFOLK.

This type of plan displays great improvement on any previous one: not only are the rooms and corridors very compact, while achieving perfect symmetry, but every room has separate access from a corridor or passage.

To Inigo Jones and his followers we owe the type of large house plan of three distinct blocks in which the principal apartments are contained in a high central block, with subordinated advanced wings on either side of it, connected to the former with colonnades laid out in some part of a circle or other geometrical figure, the whole being perfectly symmetrical and designed with the idea of a complete architectural composition. The low advanced wings contained the stables with their offices on one side, with an opposite counterbalancing block containing a chapel or servants' offices, &c,

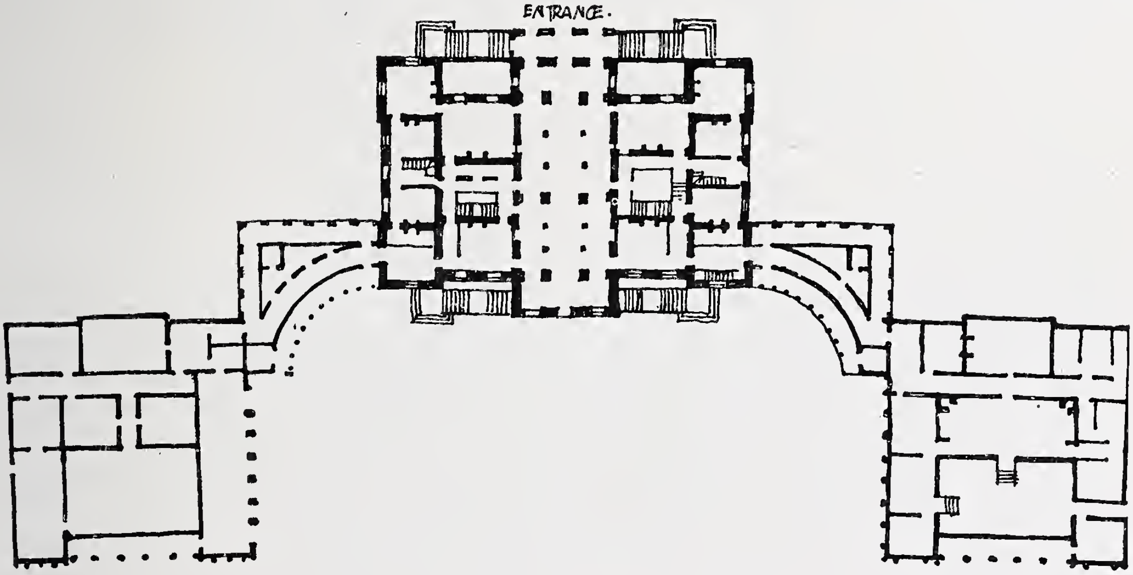


FIG. 15.—HOUGHTON CASTLE, NORFOLK. GROUND PLAN.

The ground floor of the principal block was frequently treated as a basement, as at Houghton Castle [fig. 15], the first floor, containing the superior apartments, being reached by an external flight of steps, which consequently relieved the internal staircase of much of the size and importance it previously possessed.

Many variations of this wing type of plan were followed until the end of the eighteenth century. Vanbrugh, the architect of Blenheim, Castle Howard, and Seaton Delaval [fig. 16], and some of his contemporaries subordinated the comfort and efficient working of the house to external appearance; and not content with two advanced wings they introduced second and third blocks, producing most impressive but costly and unusually inconveniently arranged houses.

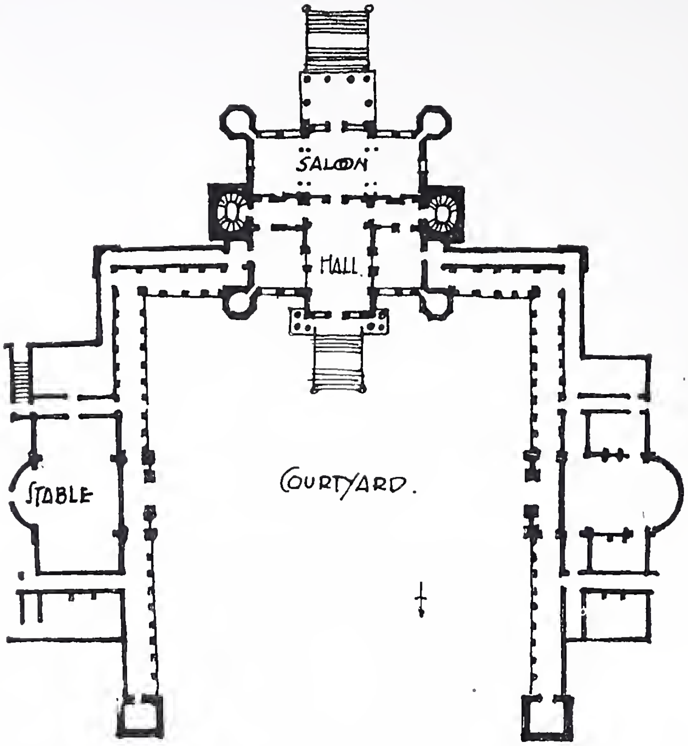


FIG. 16.—SEATON DELAVAL HALL, NORTHUMBERLAND. GROUND PLAN.

During the course of the eighteenth century several minor modifications were made in internal construction, particularly top lighting, circular, elliptical, and hexagonal as well as rectangular stairs being lighted entirely from the top; and while many designs subordinated the plan to the elevation, yet the eighteenth century also brought with it a great quantity of work which was thoroughly commonsense and practical, and a system of planning which forms the basis of much of the best domestic work of the present day.

BURGOS: S. ESTÉBAN AND THE CATHEDRAL FROM THE CASTLE.

SOME CHURCHES AND OTHER BUILDINGS IN THE KINGDOMS OF GALICIA AND LEON, THE PRINCIPALITY OF THE ASTURIAS, AND AT PALENCIA IN OLD CASTILE.

By Walter Crum Watson, B.A.Oxon.

Read before the Birmingham Architectural Association, 6th January 1905.

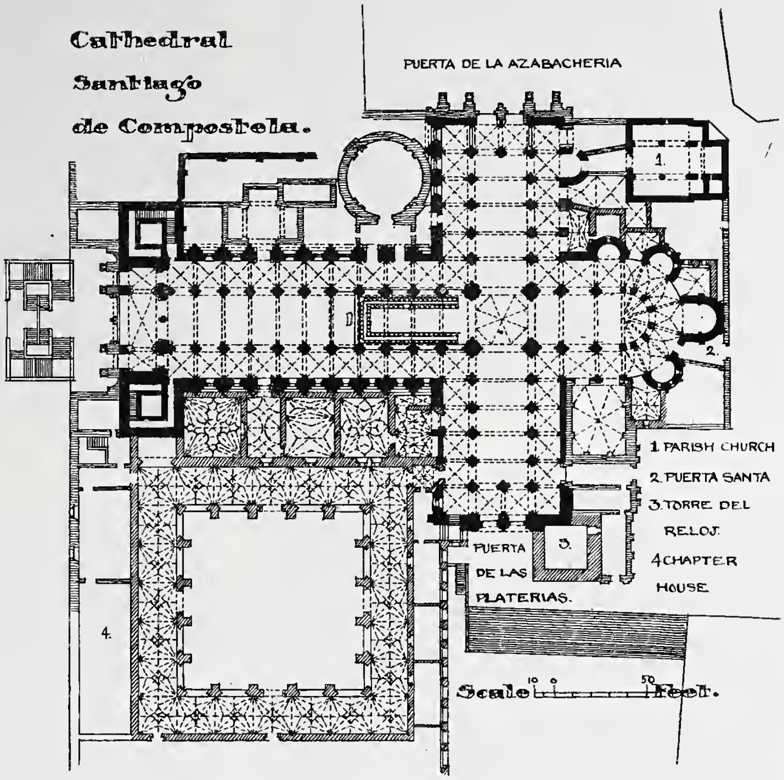
OF THE different political divisions which go to make up the north-western part of Spain, Galicia and the Asturias are unlike each other both in geological formation, as Galicia is entirely granitic and the Asturias of limestone, and in their inhabitants; for while the Galicians speak a dialect closely allied to Portuguese, the Asturian speech is very similar to ordinary Castilian. Again, both Galicia and the Asturias are unlike the provinces of Central Spain, for they are mountainous and very well-watered, while Leon and, still more, Castile are flat, high, and without a tree except on the banks of the muddy rivers.

Historically the Asturias is perhaps the most interesting. After the great disaster in 711, when King Roderick was defeated and killed at Guadalete, near Cadiz, a few Gothic chiefs fled to the narrow valleys beyond the great Cantabrian mountain chain, and there succeeded in defending themselves against the Moors. The first king, Pelayo, was elected in 718, after destroying a vast host of Moslems—300,000, according to the legend—with the help of three hundred warriors. Fifty years later the capital was established in Oviedo, still the chief town of the Asturias, and near it, Ramiro I., who died in 850, built two of the most curious and interesting churches in Spain. Not till two hundred years after Pelayo's election was his descendant, Ordoño II., strong enough to recross the mountains and fix his capital at Leon. As long as Leon remained a separate kingdom—for it was not permanently united to Castile till the middle of the thirteenth century—its capital remained a place of considerable importance; but now, except for the Cathedral and the Church of San Isidoro, it is one of the dreariest of towns. Galicia was never permanently held by the Moors, though they made several destructive raids through it, sacking and burning the towns; but it was from these raids that its chief glory may be said to have sprung, as in 813 Bishop Theodomir, of Iria Flavia, most conveniently found the tomb of St. James the Great. This discovery not only roused the people of Galicia, and all other Christians, to greater enthusiasm in driving back the Moors, but St. James himself fought on their side in every critical battle. The tomb soon became one of the greatest pilgrimage places in the world, and the wealth brought there by pilgrims enabled the bishops and archbishops to rebuild the Cathedral on a much greater scale after its destruction in the tenth century by the last Moorish raid. Galicia, too, is famous for the retreat of Sir John Moore and the battle of Corunna; and without seeing the high and bleak mountains the army had to cross it is impossible to realise the difficulties the general had to surmount, or to see how, after the army had escaped to England, Soult was so long held in check by ill-armed insurgents as to upset all Napoleon's orders and calculations.

If we remember that for some hundreds of years after the Moorish invasion the whole of the north of Spain was the scene of a more or less continuous crusade, it is not surprising that so many of the larger churches were without doubt designed by Frenchmen. At the same time it is true that before the end of the thirteenth century most towns or districts seem to have developed certain peculiarities of detail of their own, especially as regards mouldings and doorways. For example, at Segovia the churches are surrounded by a kind of cloister; at Avila the different orders of the door arches are ornamented with shallow rose-like flowers; and at and near Salamanca there was besides a further peculiarity of moulding, a remarkable development of the central lantern. However, at about the middle of the thirteenth century, many French churches were built, so that, just as was happening in France itself at the same time, the local styles were put aside, however unsuited the new one with its large windows and steep roofs might be in a land so cold in winter and so hot in summer. After some time native influence began to assert itself again, lanterns were built at the crossings, and in new churches the more national plan of three parallel apses at the east end, instead of the French surrounding aisle and chapels, was gone back to. Rather later the choir stalls were moved into the nave and surrounded on three sides by a solid screen; while later still the choir in the nave, and the chancel, were alike shut off from the transept by huge wrought-iron or bronze screens. The result of this is that unless the nave is very long and the enclosure low the view from the west is very much spoilt, and the three or four bays west of the choir turned into a comparatively useless ante-church. By the end of the fifteenth century a thoroughly national Gothic style had come in, remarkable for the want of gables, the smallness of the windows, and the extraordinary elaboration of carving on screens and doorways. This by degrees passed into the early Renaissance, or plateresque, which is best seen in town houses and courtyards, and which flourished till beyond the end of Isabella's reign (she died in 1504). The enormous number of examples to be found in almost every town shows how the country had grown in wealth since the union with Aragon, and since the establishment of settled government. Of the later and more strictly classical Renaissance as exemplified by the Alcazar at Toledo and the Escorial nothing need be said here, as, although many churches and convents in Santiago are built more or less in this style, they all, except perhaps the Church of St. Augustine, show it at its worst, clumsy, heavy, and exaggerated, while the west front of the Cathedral is only a marvellous piling up of the wildest rococo extravagance—most picturesque, but hardly worthy of serious notice.

Of Moorish influence, so strong in nearly every other part of Spain, there is practically no trace in the buildings to be here discussed. There is a small church at Lebeña, in the province of Santander, to the east of the Asturias, which has horseshoe arches, and another large church, San Miguel de Escalada, some miles from Leon, whose nave arcades are of the same shape. But these seem to be the only buildings in that wide region touched by the East. There are no beautiful bell-towers or churches covered with Arab arcades or cuspings as at Toledo, or with elaborate patterns in brick as at Zaragoza ; nor are there any examples of that rich plaster-work which extends even as far north as to Burgos.

While it is true that the thirteenth century was the time when French influence was most strongly felt in Spain, the Cathedral of Santiago shows that even before that period a French church might be used as a model. Santiago was destroyed by Almanzor at the end of the tenth century, but the Cathedral seems to have been to some extent restored, as it was still standing when the present church was built. There is an inscription on the south transept door with date, Era—*i.e.* of Cæsar—1116, that is, A.D. 1078, and the church may have been begun about that date. Some fifty years later Archbishop Gelmirez made a speech to the chapter saying that pilgrims wandered about looking for the cloisters, which were quite unworthy of the church, and offering 100 merks of silver towards erecting new subordinate buildings. By this time (1128) the church was probably pretty far advanced, as the Archbishop in the same speech says that "it is already famed for its beauty." In 1168 Ferdinand II. issued a warrant to pay Master Matthew two merks a week for his work on the great west door, and twenty years later Matthew himself says in an inscription on the lintel that he had finished this door in April 1188. The lantern was added in 1394, the cloister rebuilt in 1533, the west front and upper part of all the tower in 1738, and the north front in 1758. So extensive were these eighteenth-century alterations that outside only in the south transept is any original work to be seen. The Cathedral consists of a nave about 170 feet long and of eleven bays, a transept of over 200 feet, a choir of four bays with encircling aisle and chapels. There is a porch at the west end between the tower, the aisles are returned round the north and south ends of the transepts, and there is a tall lantern at the crossing. Unfortunately the choir has been entirely hidden beneath a carved and gilt erection which surmounts the old granite statue of St. James and his silver high altar.* The central aisle



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* Over the high altar hang two British flags taken at some fight in Florida.

is throughout about 70 feet high, and has a barrel vault; while a high gallery, vaulted in half barrel, to support the main vault, runs completely round the church, rising over the west porch with a groined vault to the full height of the roof.

The French church which has the greatest resemblance to Santiago Cathedral is that of St. Sernin at Toulouse. The planning of the choir and transepts in both is practically identical, except that St. Sernin has four bays instead of five to the transept; even the lighting of the choir triforium by small round windows has been followed at Santiago, though somewhat clumsily, and the dimensions and height are almost the same. The nave of Santiago has one bay less in length, and single instead of double aisles, but in everything else closely resembles the French church, except that Santiago is wholly built of granite, and St. Sernin of limestone and brick. Now Santiago was begun about 1078, and the choir of St. Sernin was only consecrated in 1096, the nave not being finished till the thirteenth century, so that Santiago cannot have been actually copied from St. Sernin; but we may feel sure that Bernardo, who designed it, was well acquainted with what was being done at Toulouse, and was, in fact, probably a native of that part of France.

The south transept is almost the only part of the outside which has not been overlaid and hidden by seventeenth and eighteenth century additions.* At the top of a wide flight of steps, flanked on the west side by the sixteenth-century outer buildings of the cloister, and on the east by the Torre del Reloj, or clock tower, the middle part of the south transept is still visible. Below there is, as at St. Sernin, a double door. The shafts are elaborately carved and twisted, the outer ones being of marble, and the inner, like all the rest of the church, of granite. The tympanum of the left door has the Temptation carved on it, together with a figure of St. Mary Magdalene holding a skull, which is popularly supposed to represent a woman condemned by her husband to hold and kiss her lover's skull twice a day for the rest of her life. The tympanum of the right-hand door has on it the Betrayal and the Scourging. Above are rows of stiff figures, evidently arranged where they now are at some later date without much regard to the subject.

Above the stringcourse are two large windows to light the triforium. Their outer arches are cusped in a way which at first sight seems to suggest Moorish influence; but exactly similar cuspings may be found on many arches in the churches of that architectural province of which Angoulême is the centre, and are therefore probably only due, like most of the church, to France.† Behind the gallery roof rises the plain gable lit by a round window. The clock tower was in the sixteenth century crowned by a wrought-iron belfry, which was unfortunately taken down and an extravagant domed tower like those at the west built in its stead.

Before the alterations, 150 years ago, the north door, or Puerta de la Azabacheria, must have been very like the south door, and had carved on it the history of the Redemption and of the Fall.

On entering the south door the longest clear view in the church is at once seen. Clear of the returning aisles the transept is 180 feet long, and is built in exactly the same way as the nave. The piers are alternately square, with a semicircular shaft on each side, and a rounded square with four similar shafts. The capitals are all of the common Romanesque form derived from the Corinthian or perhaps more probably from the composite. Above the stilted arches is a stringcourse ornamented with billet moulding and then the triforium, which consists of a semicircular arch enclosing two smaller stilted arches, which, as at Toulouse, spring at the sides from single, and rest in the middle on thinner coupled shafts.

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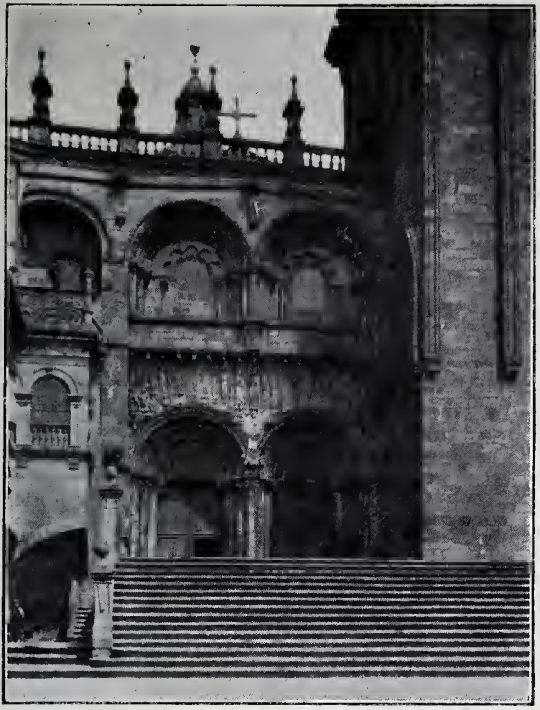
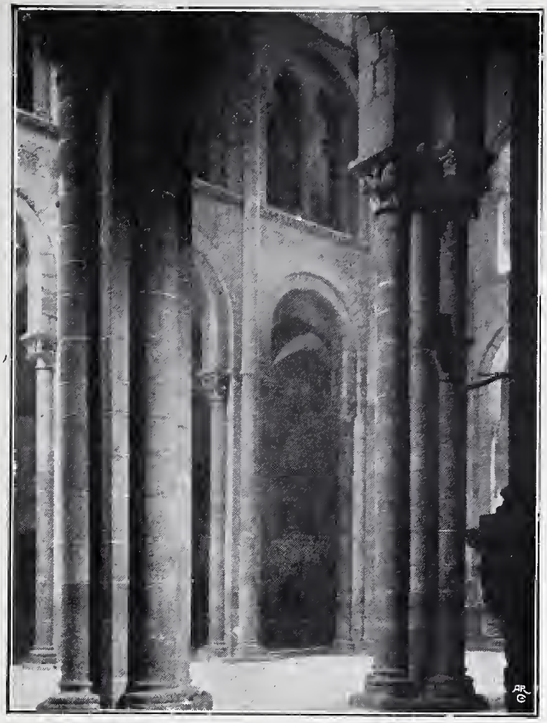
* Except a small portion of the choir south of the central apsidal chapel, in which is the Porta Santa, only opened in years when St. James's Day falls on a Sunday.

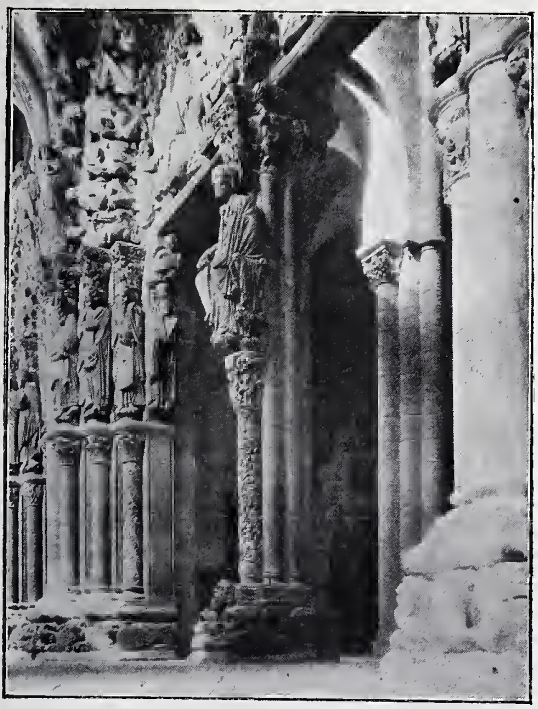
† *Cf.* the west front of the Church of St. Palais de Cornemps, in the department of Gironde.



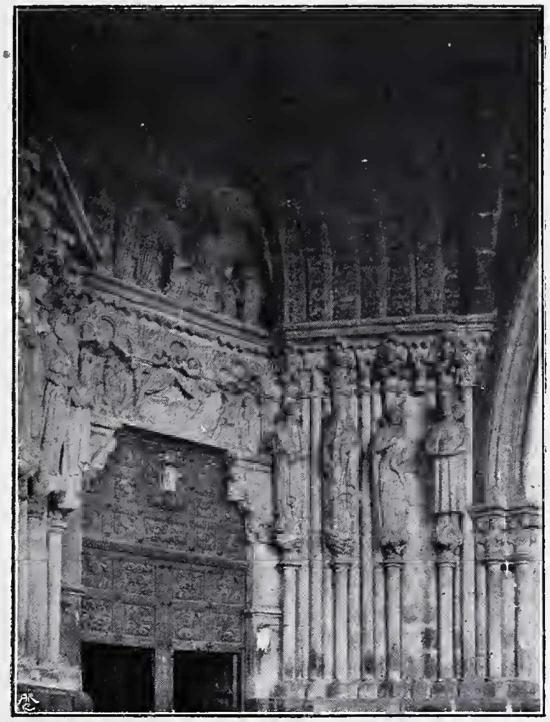
SOUTH TRANSEPT, SANTIAGO : PUERTA DE LAS PLATERIAS.



NORTH TRANSEPT, SANTIAGO, FROM NORTH CHOIR AISLE.



PUERTA DE LA GLORIA, SANTIAGO.



WEST DOOR, CATHEDRAL, TUY.

NORTHERN ARCHITECTUR

The Puerta de la Gloria, at the west of the nave, is the most interesting part of the whole church, and perhaps the finest Romanesque doorway in the world. It, or the interesting crypt below, was begun by Master Matthew in 1168, and finished, twenty years later, in 1188. There are three doorways, of which the larger in the centre has a double opening and solid tympanum, while the others are clear to the top of the arch. The whole, except four carved shafts, which are of marble, is of granite, and has been painted. The jambs rest on strange winged monsters, and the central jamb on the figure of a man clasping two open-mouthed monsters in his arms; and behind him, facing east, kneels a man, supposed to be Master Matthew himself. The marble shaft of the central jamb is wonderfully carved with the tree of Jesse, and its capital with the Trinity. Above the capital sits St. James, under a large capital carved with the Temptation in the wilderness. On the shafts to the left are four Old Testament prophets—Moses, Isaiah, Jeremiah, Daniel—on those to the right, St. Peter, St. Paul, St. John, and another saint. In the centre of the tympanum is seated Christ blessing; round Him are the four Evangelists; angels, with the emblems of the Passion, below; the heavenly worshippers above; and round it all, on the arch, are the twenty-four elders playing on musical instruments. The southern opening has the resurrection of the dead; and the northern, foliage. The outer door, destroyed in 1738, had on it the Transfiguration. Now an elaborate flight of steps leads up to the outer door, though perhaps originally it may have opened on to a narrow terrace, some twenty or thirty feet above the ground, as is still the case with the west "Paraiso" at Orense, an undoubted copy in every detail of the Gloria. At Santiago this gallery may have been used to expose the relics to pilgrims gathered in the great square, though this cannot have been done at Orense, where there is nothing but a narrow lane below. Inside, the triforium arcade is carried across over the central door, and the wall above is pierced by a large round cusped opening and two smaller quatrefoils. The cloisters were rebuilt by Archbishop Fonseca in 1533. Their openings are large, but without tracery; the chief beauty is a very fine vault and a band of Renaissance carving along the wall. The outer front, towards the east, is far more interesting, and is as good an example as can be found of the less extravagant and more beautiful plateresque.*

Of the other Romanesque buildings at Santiago the most interesting is Santa Maria del Sar, an old half-ruined abbey at the bottom of a damp valley, half a mile from the town. The church is of five bays and three aisles, all covered with semicircular vaults and ending eastwards in three apses. The bases are deeply sunk beneath the floor, and the church is only held up by huge flying buttresses which have been roofed in, and form a sort of hall to the north of the church. To the south are the cloisters, of which only a beautiful fragment remains. They are traditionally said to be by Master Matthew, and as the carving on the under side of the arches is very like that of the vaulting ribs of the Puerta de la Gloria, it may very well be true. In the square in front of the Cathedral there is a doorway built in the fifteenth century, the only part left of the Colegio San Jeronimo. The semicircle of figures round the arch is interesting as showing the influence of the great Puerta de la Gloria.†

Behind San Jeronimo is the Colegio Fonseca, now the medical school of the University. It was built by the same Archbishop Fonseca who added the new cloister to the Cathedral, and was designed by Juan de Alava, who was one of the architects consulted about the new Cathedral at Salamanca. The outside is plain, but the patio, with its light arcading and pierced granite cresting, is very elegant, and less strictly classical than the unarched courtyards of Burgos and Avila. At the north side of the square, in front of the Cathedral, is the Royal Hospital, founded by Ferdinand and Isabella in 1486, begun 1489 and finished 1509. It contains four patios, with a chapel in the middle, and was designed by Enrique de Egas, son of a Flemish architect, who added to Toledo Cathedral, and brother-in-law of Juan de Alava, who built the Colegio Fonseca. Howsoever, it is a thoroughly Spanish building. The south front, about 230 feet long and 50 feet high, shows well a point in which later Spanish architects excelled. The lower part of the front is very plain, with two stories of simple windows put wherever they were wanted, and not arranged symmetrically. Rather more than halfway up two great balconies on huge corbels throw deep shadows, and opening on them are four large windows, of which only one retains its original rich framing. All the elaboration is confined to the great central doorway and the square panels for shields on either side. The framing of the door runs up to the cornice with a great wealth of carved pilasters and niches, and above all a semi-classical cornice of great depth and projection gives a splendid finish to the whole design.

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* Besides the High Altar and the many chapel altars, the Cathedral contains those of seven parishes, six of which have no separate churches, and the seventh a small Romanesque church which, standing north of the choir, has been joined to the north transept by a more modern passage.

† Similar radiating figures are to be seen on the beautiful west door of Noya in Galicia, and even in Portugal, on the door of the Collegiata of Vianna do Castello, and, of course, at Orense.

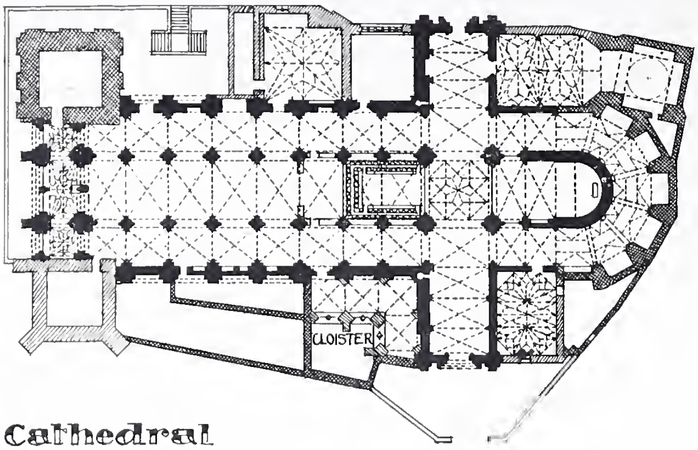
Tuy.—The town of Tuy stands on a hill above the Miño, over against the Portuguese fortress of Valença, and is crowned by the fortified Cathedral. The two western towers end in battlements, and a large chapel to the north of the nave has been carried up to form a kind of keep. The church consists of a short choir and aisles ending in much altered apses, a Romanesque transept with aisles, and an early pointed nave of five bays almost entirely blocked up by the coro. The church was begun by Bishop Alfonso I. about 1120, and must have been finished about the end of the thirteenth century.

The north transept door is almost identical with the west door of Santa Maria del Sar at Santiago, which was built about 1165, and must be rather later than the transept itself, which is very like Santiago Cathedral, but narrower and higher in proportion, and with a groined vault. Like the nave, it is too blocked up by straining arches thrown across at each bay, after the Lisbon earthquake, for any good view to be got. At the west end there is a large projecting open porch covering a very fine thirteenth-century doorway. On either side, on the jambs, stand saints, evidently inspired by Master Matthew's work at Santiago, but less perfect. In the tympanum there is, below, the Nativity; above, other scenes; and at the top a curious kind of architectural filling-in. The arch itself is elaborately carved with foliage, somewhat after the manner of the north door of the Puerta de la Gloria.

Orense.—Some fifty miles further up the Miño, which runs through a most splendid gorge, the valley opens out, and Orense, so called from its hot springs, is found standing on the south bank of the river.

The Cathedral was begun by Bishop D. Diego Velasco about 1120, and the high altar was consecrated some forty years later. The church, however, was not completed till the time of Bishop Lorenzo who died in 1248. As first finished the Cathedral consisted of a short choir with central and side apses, an aisleless transept projecting three bays beyond the walls, and an eight-bayed nave with a porch at the west end. In the fifteenth century chapels were added on the north side, a sacristy to the south of the choir, while a cloister had been begun about the end of the thirteenth century south of the nave. To the south-west a large tower was begun about the end of the fifteenth century, and a lantern was built at the crossing by Juan de Badajoz in 1499. In the seventeenth or eighteenth century the side apses were taken down, a processional path carried round the central apse, and a large telescopic domed tower built to the north of the west front opposite the unfinished south tower. Like Santiago, later additions have largely hidden the outside of the church, but both transept ends, the west front, and a small part of the north side of the nave are still uncovered.

The south transept door is the oldest unchanged entrance to the church: it is of three orders which rest on shafts, having good Romanesque capitals, and of one springing from the jambs. Of these orders the outer has a plain roll moulding which is, as it were, held in by a series of horseshoe cusps which are separated one from the other by a deep groove; the second has radiating foliage, the third several small figures among foliage, while the innermost and most remarkable has four sets of double cusps enclosing more small figures. The north door was originally very similar, but the shafts have been twisted, and the inner ones adorned with large standing figures. Unfortunately, about 1475, the Cathedral was besieged by the Conde de Benevente, and this front much injured. After this siege the two outer orders were restored with fifteenth-century details imitating the original forms. Only the two inner orders are preserved, one of which, though like that of the south door, is much more elaborate, with interlacing cusps, enclosing, as before, small figures. On the north side of the nave the bays are separated by deep buttresses of two orders, which are united under the cornice by pointed arches enclosing small round-headed windows of the usual Romanesque type. The west front stands on a narrow inaccessible terrace high above a lane, and so can scarcely be seen. Inside, the piers of the nave are square, with four semicircular shafts, and the capitals are not much more advanced than those at Santiago. The vaulting shafts run up some way above the pointed aisle arches to a plain stringcourse at the level of the springing of the vaulting. The round-headed clerestory windows stand directly on this stringcourse, there being no triforium.



Cathedral
Orense. Galicia.
Scale 10 0 50 100 **Feet**

The piers were designed without any provision for the diagonal vaulting ribs, for perhaps a barrel vault was intended; so to carry these ribs smaller capitals have been put in beside the large ones: these capitals look as if they had lost their shafts, but the underside, where the shaft should have joined, is carved, so that they must from the first have been intended merely as corbels. The pointed vault has very bold ribs, and being built of immense blocks of granite has an appearance of very great strength. The west porch or Paradise is interesting. It is a copy of the Gloria at Santiago, but is without any of the beauty which distinguishes the Gloria. It was clearly meant to be an exact copy, as the very same personages occur in much the same attitudes, but it has been much spoiled. The monsters on which the jambs rested have all been shaved off, and the tympanum has been replaced by some elaborate fifteenth-century tracery. The fragments of the cloister make one regret that it was never finished, and the large chapel built by the Conde de Benevente next the transept, in expiation of the damage he had done, has, what is almost unique abroad, a large five-light English-looking reticulated window. Behind the silver high altar is a fine carved and gilt reredos reaching up to the springing of the apse dome; and both the choir and high altar screens, while not to be compared with those at Toledo or Granada, are very good examples of the later screens of the sixteenth century.*

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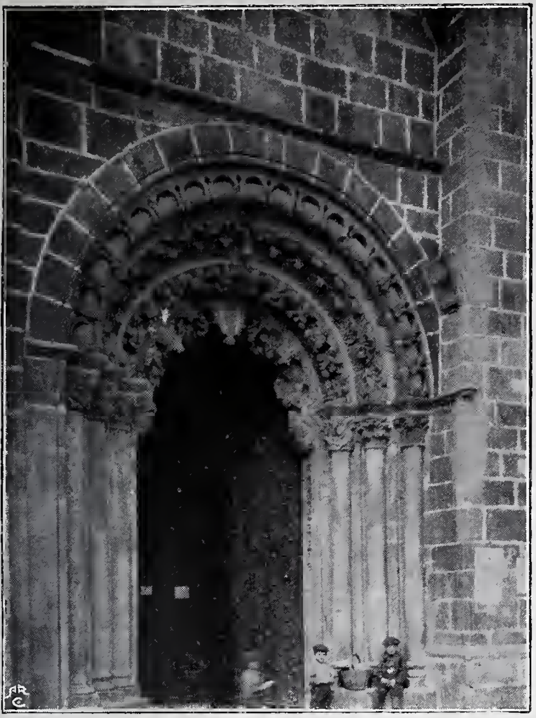
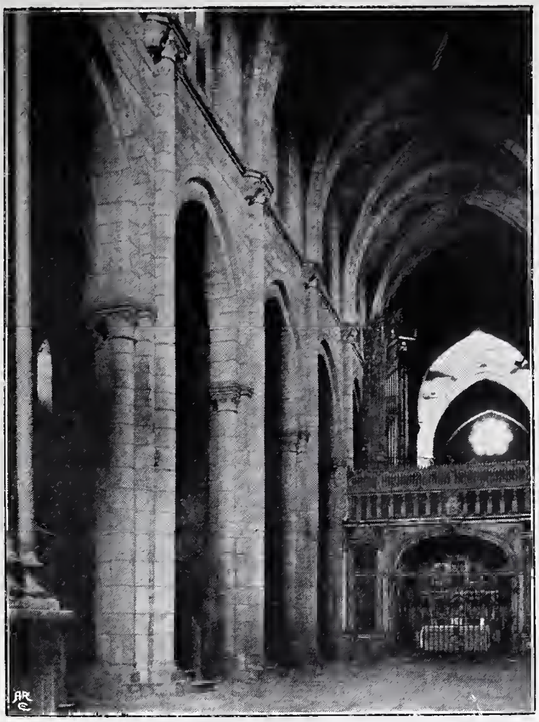
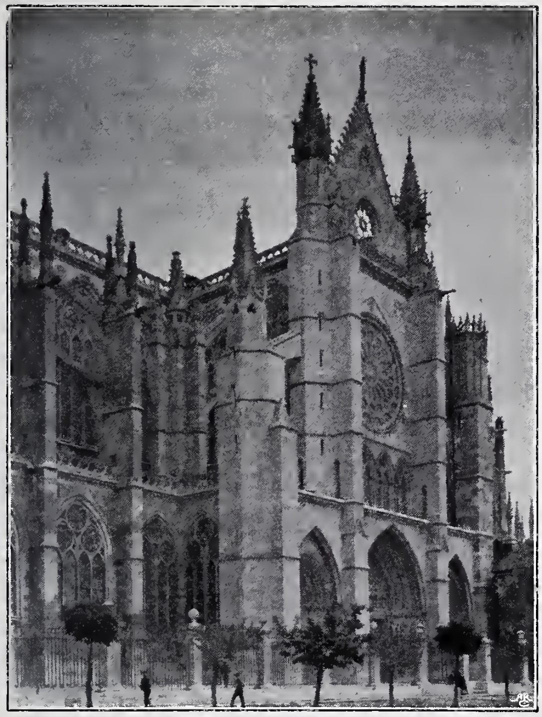
* These screens were made by Celma.



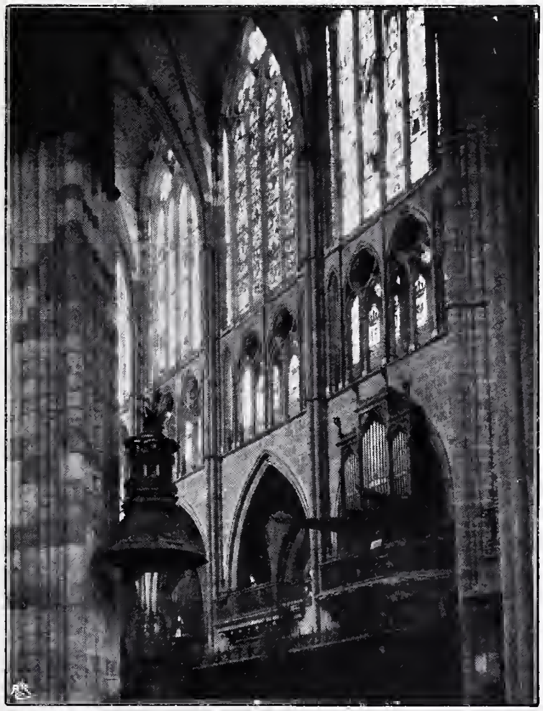
DOOR OF SOUTH TRANSEPT, ORENSE.



NAVE, CATHEDRAL, ORENSE.



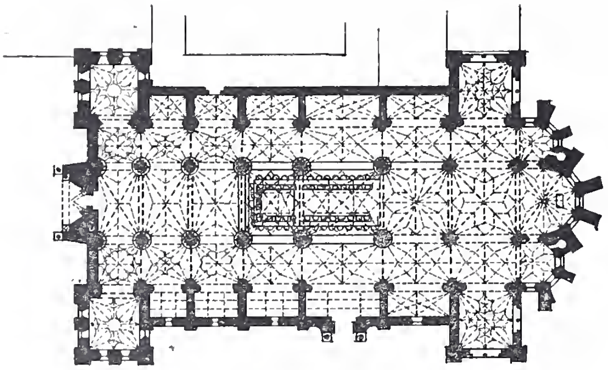
CATHEDRAL, LEON : SOUTH TRANSEPT.



NORTH SIDE OF NAVE, LEON.

ARCH ECTUR

Lugo.—Of the Cathedral of Lugo much need not be said.* The church is said to have been begun in 1129 by a certain Maestro Raymundo, who was to get for his services 200 sueldos a year, thirty-six yards of linen, some wood, and as many pairs of shoes and gaiters as he needed, besides 2 sueldos a month for meat, some salt, and a pound of candles. Of his church there remain a nave of ten bays, though the two western are probably later than his time, and a transept. The nave has in its central aisle a pointed barrel vault, and, curiously enough, a round barrel vault in the five eastern bays of the aisles, being thus more primitive in construction than Santiago, the inside of which was finished the year before Lugo was begun. In consequence of the barrel vault the aisle arches in these bays, now walled up, were segmental and nearly flat. The five western bays have usual groining, as has the triforium, where the openings are all of two pointed lights under one arch. The choir, of the French plan of radiating chapels, must be of about a hundred years later date, but the upper part and the lady chapel have been rebuilt in the eighteenth century, when the very poor west front was added. The north door, sheltered by a fifteenth-century porch, belongs to the early thirteenth century, and has a figure of Our Lord in a vesica between the two pendent arches, which seem to spring from a hanging capital carved with the Last Supper. The ironwork of the door seems contemporary with the doorway itself.



Cathedral

Astorga.

Scale 10 0 50 100 **Feet.**

Astorga.—We now leave the green and well-watered kingdom of Galicia and enter the high, flat, and dreary kingdom of Leon. Astorga, the first town in Leon, is one of the dullest towns in Spain, with nothing of any interest but the Cathedral and a monstrous palace which the bishop has been building for the last twenty years. The Cathedral was begun in 1471, and its plan shows how unwilling the Spaniards were to adopt the French chevet. The church consists of a nave and aisles of seven bays with three apses to the east, larger chapels to take the place of transepts, and two western towers projecting beyond the aisles. Work was begun at the east end, and the west front is quite Renaissance in character. The church is about 240 feet long, and high for its length. As in most later Spanish churches, the piers have become bundles of fine mouldings: they have no capitals and elaborate interpenetrating bases, while the vaulting, as usual, is covered with many more or less superfluous ribs. The windows are filled with half-Renaissance tracery and very fine glass. The coro, which, as usual, blocks up the nave, has stalls of the common pattern, carvings on the back of the lower row, large figures in relief on the backs of the upper, and a continuous canopy over them all, crowned in this case with elaborate Renaissance pierced panelling. The screen of the coro must be of about the same date as those at Orense, and the classic reredos was added in 1569. The west front, which is the latest part of the church, is picturesque if not orthodox. Of the two towers, which were meant to be the same, only the southern was finished. It is built of dark-red stone, and has a picturesque slate roof, while the northern is built of the green stone used inside the church. The end of the church between these has at the top a sort of sham rococo gable; below, a round window; and at the bottom a remarkable porch, built of bright yellowish stone. This porch is a kind of three-sided apse, with a semi-dome, covered all over with the most elaborate carving, and is so effective as to make it regrettable that the columns and many of the details are of a kind which cannot be accepted.

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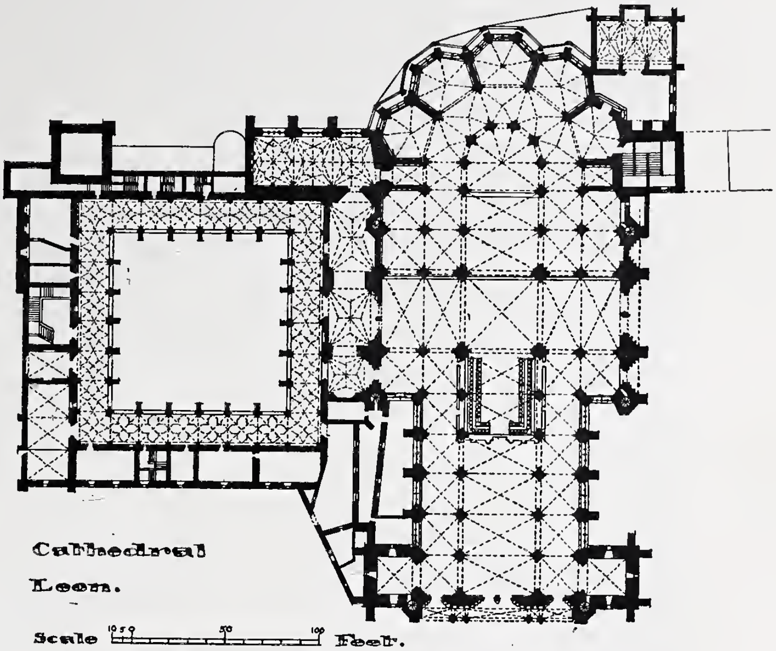
* This cathedral has the unusual privilege of having the Host continually exposed night and day on the high altar.

Leon.—Leon lies about twenty or thirty miles east of Astorga, and, being surrounded by two streams, and consequently trees, is less dismal. In it there are at least three buildings of interest—San Isidoro, the Cathedral, and the convent of San Marcos. San Isidoro, the oldest, lies close to the west city wall, its tower, indeed, standing on it. The church has a nave of six bays, transept lower than the nave, two original apses, and a late chancel taking the place of the central apse.* To the west is the Pantheon, where the earliest kings of Leon are buried. The nave has a barrel vault in the central aisle, no triforium, but a good, round, arched clerestory and aisles. The transept barrel vault springs from the level of the string below the clerestory windows, and the arches opening into it are cusped with large semicircular cusps, Moorish in appearance, but probably French in origin. The church is said to have been begun in 1030 and finished in 1063; but from the refinement of its detail must probably be at least one hundred years later.



The Cathedral of Leon is said to have been begun by Bishop D. Manrique, who died in 1205, and to have been finished about 1303. However, the church is of even a more advanced French Gothic than are the Cathedrals of Amiens and Reims, which were not begun till after 1205, so that it must have been begun considerably later—probably about 1250. Whoever designed it must have been familiar with the best thirteenth-century French work, for it is only the later additions, like the towers, which are not built in the finest French style. As at Beauvais, the architect tried to exceed Amiens or any other French church in lightness, and, without thinking of its unsuitability to such a climate, increased his clerestory windows to a height and size only to be exceeded at Metz. As at Beauvais, the result was disastrous. Almost immediately the outer light of the clerestory and triforium had to be built up, and at last, in the nineteenth century, much of the church had to be taken down and put up again. This restoration took so long (forty-three years), and was really so well carried out, as to have done wonderfully little harm. The nave, of six bays, and 100 feet high, the transepts, of two bays each, the choirs of two, with chevet beyond, all belong to the original plan. The two west towers, standing beyond the aisles, are later, and leave a deep chasm between them and the central aisle. All three fronts have fine French doorways, with large rose windows above. Inside, all the piers are round, with four round engaged shafts, and in front two subsidiary shafts to carry the diagonal vaulting ribs. The aisle windows have four lights with usual tracery. The aisles themselves are unusually low, 40 feet, being in fact exactly the height of the clerestory; and as the triforium is also glazed, the whole height of window (55 feet) far exceeds that of the aisles. The triforium consists of two two-light openings in the middle, with single-light openings at the side, and the clerestory of a large four-light window with corresponding single lights at the sides. These side-lights, built up soon after the church was finished, are now again opened out. Every window throughout the church is filled with stained glass, mostly contemporary with the church itself and exceedingly rich in colour. Many of the wrought-iron chapel screens are of great beauty, and throughout the church there are several interesting tombs, of which the most important is that of King Ordoño II., at the back of the high altar. Ordoño himself died in the tenth century, but his tomb cannot have been erected till at least the fifteenth. He lies in a high, sloping tomb surmounted by an arch, richly carved with the castles and lions of Castile and Leon, and surrounded by large figures of bishops, monks, and saints. Of greater interest is the tomb of a bishop in the north transept, which is perhaps a little older than the church itself. The bishop lies with his feet to the north on a sarcophagus, whose front is carved with beautiful figures recording his charity in distributing bread in times of distress; behind are more figures; and above, a round arch whose voussoirs are carved with delicate radiating leaves and exquisite half-figures of angels; and inside the arch is a series of large cusps, each having on it a kneeling angel, of whom the two uppermost receive the bishop's soul in a sheet. The coro is in the usual place; but instead of the bishop sitting in the middle, at the west, there is a built-up doorway, and his seat is where in this country the dean sits, while the King, who is an hereditary canon, has the corresponding stall on the north side. The stalls are of much the same design as those at Astorga, but earlier, and without the fine Renaissance pierced panelling above. The cloister on the north side has been much mutilated, and the frescoes admired by Street have almost disappeared. East of the cloister is the large chapel of San Estéban, added in the fifteenth century. Its north end is quite plain, except for three elaborately canopied niches which make a very effective reredos. The south tower is crowned with an open-work spire, an evident descendant of the German spires at Burgos, begun by Juan de Coloña, or John of Cologne, in 1442; the other has a plain, stumpy spire, finishing in a pinnacle. The great drawback to the church outside is the absence of visible roofs – a drawback it shares with all other French churches in Spain, and which leaves the gables standing useless.

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* As at Lugo, the Host is here exposed all day, but withdrawn at night.

About a mile out of the town, to the north-west, on the banks of the river Esla, stands the great Convent of San Marcos, founded in the twelfth century for the Order of Santiago, now partly a barrack and partly a provincial museum. The principal front is turned towards the south or south-east, and has at its eastern end the church, which, however, is built without any regard to orientation. The rebuilding was begun in 1514 by Juan de Badajoz, who had already built the central lantern of the Cathedral of Orense, and it shows a distinct advance, even in the oldest part of the church, from the regular late Gothic of that lantern towards the early Renaissance. The church, which is still unfinished, consists of a nave with flanking chapels, transept, and three-sided chancel, all elaborately vaulted. At the south end of the nave, which would be the west were the church turned the usual way, is a deep vaulted gallery. Outside, above the door, which is enclosed in a framing of plateresque details, is a great round arch, too large and high to be called a porch, which, in fact, carries on the choir gallery within. On either hand towers were intended, of which one is scarcely begun and the other only carried up a short way, the whole being covered with the shells of Santiago. From this church front westwards extends the long façade of the monastery, which, if it be by Juan de Badajoz, shows, with its elaborate plateresque details, that he had entirely shaken off all thought of Gothic. The front is of two main divisions. The lower, above a plain plinth, is divided into squares separated by Corinthian pilasters, each of which is covered with wonderfully minute plateresque ornament. These squares are again subdivided into two by shallow shell niches in oblong moulded frames, below which runs a band of circles, three to each square, from which look out heads of Roman emperors and of other famous men. The round-head windows are few, occur irregularly, and are flanked by pilasters. Above the lower entablature the pilasters are carried up with candelabrum shafts of wonderful richness, and above them and the windows, which are square-headed and more numerous than those below, run a crowning cornice and a pierced cresting, not at all unlike that of the Santiago cloister. Unfortunately the central doorway was altered in a lamentable fashion in 1715, with an exaggeration of plateresque detail and an attenuation of columns which are most unpleasing, ending above in a kind of contorted pediment enclosing an open circle.

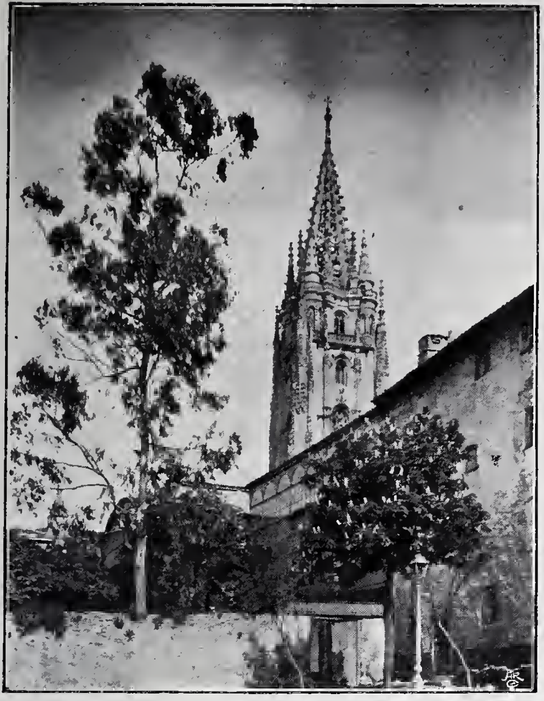
The chief cloister is curiously plain when compared with the front: it is of two stories. The lower has an elaborate Gothic vault, with large round-headed openings separated by plain panelled buttresses, which are cut off straight below the upper story in such a way as to give them an unfinished look. The upper cloister, of twice as many bays as the lower, has segmental arches resting on single shafts.

In the church the chief interest is in the choir gallery, where there are very fine early Renaissance stalls carved with medallions and figures, and designed in curious sham perspective which does not add to their beauty.

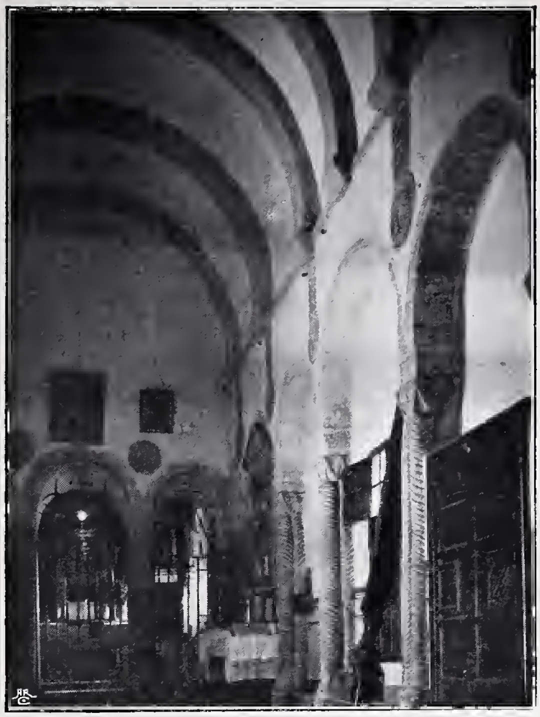
Oviedo.—There can be few railway journeys anywhere of greater beauty than that from Leon to Oviedo. The line runs northwards for some twenty or thirty miles up the valley of the Esla, which, as the Cantabrian mountains come nearer, gradually contracts till it becomes a gorge, not unlike the Cheddar Cliffs, on a larger scale, so narrow that there is often barely room for the river, the road, and the railway. Above rise great bare mountains capped with snow. At last the train enters a long tunnel, and on coming out on the north side of the range a complete change is seen. The valley is green with grass and thickets of oak and chestnut; behind rise half a dozen sharp snowy peaks, and from Pajares, the first station, the line can be seen three times as it twists downwards to reach the bottom of the valley, some 2,000 feet below—thirty kilometres away by rail, but barely five by a steep mountain path. Oviedo itself lies some thirty miles north of the mountains in a well-watered region. Though it became the capital of the early Gothic kings in the eighth century, there is little in it of great age. Of the Cathedral, founded by Fruela in the eighth century and rebuilt by Alfonso I. in 830, nothing is left but the Camara Santa, or Treasury, built to hold the precious relics which the Gothic fugitives brought with them as they fled from Toledo before the conquering Moors. To this old cathedral cloisters were added in 1300. Their five-light openings are large, and filled, some with fine geometric and some with flowing tracery, while all the capitals and corbels are richly carved with foliage or with figures. Towards the end of the same century it was determined to rebuild the Cathedral. The first stone was laid in 1380 by Bishop D. Gutierre de Toledo; the chancel was finished in 1400; the one tower and spire which has been built was not ready till 1550. The church is about 220 feet long, and consisted of a broad nave and aisles of five bays, a wide transept, large, many-sided central apse and small side apses. In the seventeenth or eighteenth century these side apses were removed, and a processional path as at Orense carried round the central apse. In front is a large porch of three bays corresponding with the three aisles of the nave, and on the southern bay stands the tower finished by D. Cristóval de Rojas, which ends in what is the most successful of the all-open-work spires which are derived from those by Juan de Coloña at Burgos. Some of the details of this spire and its pinnacles naturally show Renaissance influence, but the whole is still thoroughly Gothic in feeling, and much freer of Germanisms than are those at Burgos. Inside, the details are rather poor and uninteresting. The piers and arches have shallow mouldings, the triforium in each bay has two openings filled with rather thin flowing tracery, and the clerestory windows, which were filled with fine glass in 1510 (by Don Valeriano Ordoñez), are wide and low, and have similarly thin tracery. Indeed all the details are more like rather poor French flamboyant than is usual in Spain, though the proportions are not at all French, as the wide vault is only 65 feet high. Within the last year the coro, with all its stalls, screens, and enclosing walls, or trascoro, has been removed, greatly, no doubt, to the gain of the church as a whole, though much of interest and beauty must have been lost. Stalls—if the old stalls, then shorn of their canopies—have been rearranged round the apse behind the high altar in the Italian fashion, but iron rejas and all else seem to have disappeared, and the organ is being rebuilt over the west door. The chief interest in the church now is the great retablo, or reredos, which covers all the apse, and reaches up to the clerestory windows in a series of splendidly wrought niche and canopy work, endless groups of finely carved holy figures, the whole finished above by a rich Gothic cornice. Unfortunately a late bishop spent £2,000 in repainting the figures with red and green metallic paint and in adding red gas or electric globes to the cornice. For all that it is still a fine piece of work, and makes a most effective ending to the church. It was begun in 1430 and finished in 1512.

Of far greater interest than the Cathedral are the two small churches which stand near together on a steep hillside some two miles from the town. The larger of these—Santa Maria de Naranco—is a very puzzling building. Many have supposed that it was first built by King Ramiro I. as the great hall of his palace, and it is certainly very much more like a hall than a church; besides which Ramiro also built about the same time the small Church of San Miguel de Lino, only some three hundred yards further up the hill; and that San Miguel was a church from the first there can be no doubt. On the other hand, there is an inscription in Santa Maria which seems to show that Santa Maria was also intended to be a church. It runs as follows: "✠ Xρe . filius . dei . q . . . e Mariæ ingressus es sine humana conceptione et egressus sine corruptione, qui per famulum . . . tuum Ramirium principem gloriosum cum Paterna Regina conjuge renovasti . . . habitaculum nimia vetustate consumptum e . . . eis ædificasti hanc haram be . . . tionis gloriosæ Sce. Mariæ in locum hunc Scum . . . ex . . . eos de cœlorum habitaculo tuo et dimi . . . arum . qui vivis et regnas per infinita secula seculorum. Amen. e viii° klds julias era DCCCLXXXVI°," *i.e.* 886 in the era of Cæsar, or A.D. 848. Besides, a contemporary bishop of Salamanca speaks of Santa Maria de Naranco as a church of admirable beauty and perfect ornament.

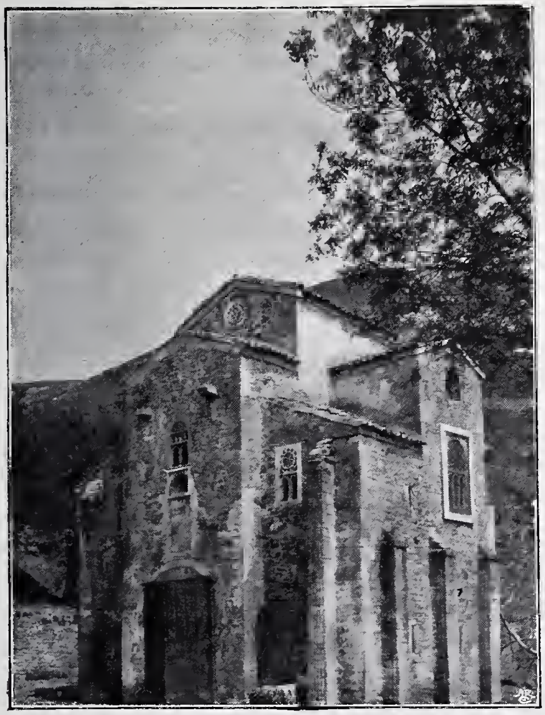
The church consists of a parallelogram about 60 feet long by 20 feet wide. Below is a barrel-vaulted crypt, entered from the south side; above is the church, which is reached by a triple flight of steps on the north, which lead to a porch and door, which must be of a rather later date. A barrel vault runs the whole length of the building, cut across at about 10 feet from either end by the returning of the wall arcade, which runs round the whole church. The round arches of this arcade spring from curiously carved cubical cups, which rest on shafts consisting of four rope-like bands twisted in opposite ways. The barrel vault is divided above each pier by flat stone strips, which are carried down below the plain stringcourse, and end in curious seal-like medallions. Below the stringcourse the stone band is curiously ornamented and carved: an oblong panel is enclosed by a cable moulding, and contains two small arches above and two below, all resting on small shafts a few inches long. In the upper arches are two rude figures in slight relief facing outwards, and in the lower two equally primitive horsemen riding towards each other. From this panel hangs, as it were from a ribbon, a circular



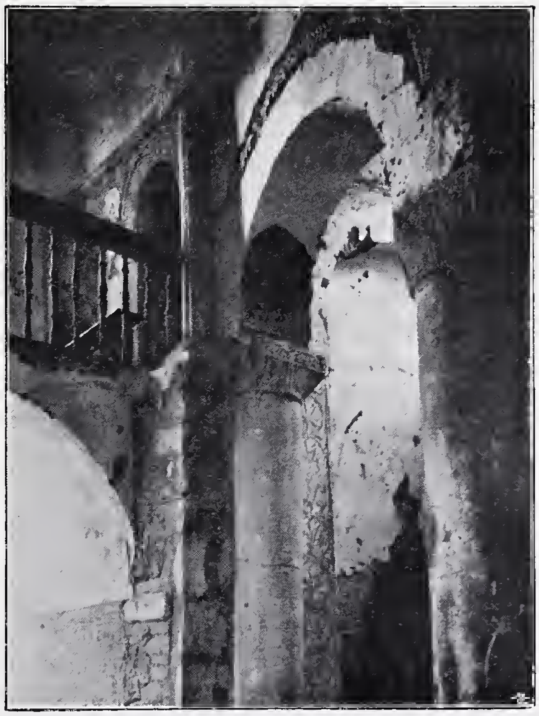
TOWER AND SPIRE, CATHEDRAL, OVIEDO.



SANTA MARIA DE NARANCO.



SAN MIGUEL DE LINO.



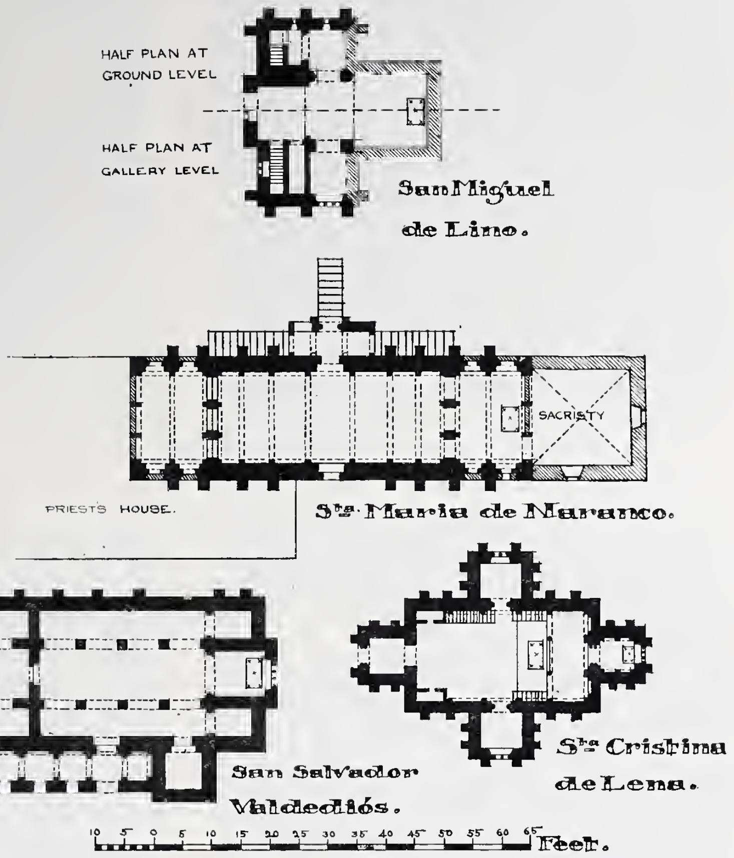
INTERIOR, SAN MIGUEL DE LINO.

NORTHERN ARCHITECTURAL A ION

medallion: round its outer edge runs a double cable moulding, with a similar moulding some 6 or 8 inches nearer the centre, and between the two a band of twisted leaf ornament—all this enclosing a swan, a dog, or some other animal carved in the same way as the figures in the panel above. But the most interesting portions of the whole building are the two parts cut off by the returning arcades at either end. As can still be seen in the sacristy, built on behind the altar, which stands in the eastern space thus cut off, the wall arcades in these spaces were originally open, forming loggias at either end of the enclosed and windowless central part. Now all this is very unlike a church and very like a hall, so built as to be cool and yet light, and in whose loggias the King could sit enjoying the splendid view and pleasant breezes, and perhaps hearing the petitions of his people. The inscription speaks of the building as a "habitaculum," and says that "Christ has for Ramiro and his wife built an altar to the Virgin in this holy place." Is it possible that Santa Maria was originally both a hall and an oratory, with perhaps an altar standing in the eastern loggia, whose opening may have been filled up with pierced stone slabs, like the windows of San Miguel?

Whatever Santa Maria may have been meant for, there can be no doubt that San Miguel de Lino was always a church. That the two are contemporary is shown, not only by documentary evidence, but by their buttresses, which are exactly alike. They are of considerable projection, and have on each face three sets of mouldings or flutings, each pair of which is joined above and below by a curve. San Miguel is now, and must always have been, much smaller than Santa Maria. At present it consists of a small nave or porch about 10 feet square, with a gallery above, narrow and high transepts with a square lantern at the crossing, and to the east a later and featureless chancel, some 12 feet deep, which like the rest of the church is covered with a semicircular barrel vault. The gallery is reached by narrow straight stairs, which, with the chambers from which they start, fill in the angle between the transept and the little nave. What now looks like a lantern may at first have been the west end of the central aisle of a small basilica, and the transepts the ends of the side aisles; for beyond the transept arches everything, including what is now the east side of the lantern, has been rebuilt, and it can be seen that the transept arches themselves were but the last arches of an arcade. It is clear that the church can never have reached much farther towards the east, as the ground falls steeply away close to the present chancel end. The transepts are lit each by a very small window below and a large one above, filled with an elaborately pierced stone slab. The gallery has a smaller window, and each stairs one still smaller, filled with similar slabs. There is also a small round opening with a pierced slab to light the lantern. All these slabs are much of the same pattern; below are two or more round-headed openings, separated by baluster-like shafts; and above either, as in the transept windows, an intricate arrangement of intertwining and knotted mouldings, like many Italian slabs of a similar date; or, as in the other windows, a pierced wheel. It is interesting to note that fragments of very similar windows have been found in the ruins of churches built at Old Seville before the Moslem invasion, showing that in building San Miguel—about 848—Don Ramiro was only using details long familiar to the Goths. The large door has a plain unmoulded arch, but its jambs, which are exactly alike, are covered with most curious and rude carving. Each has three panels, divided and surrounded by a broad flat band covered with what are evidently meant for leaves, and these panels are filled with very rough figures. On both jambs the upper and lower panel has on it a seated figure in the middle, with a standing figure on each side, one of which seems to be holding in one hand a trident, and the middle panel a lion rampant, in front of which a young man is doing the acrobatic feat of dancing on his hands, to the admiration of a more stately personage who stands looking on. What these carvings are meant for it would be difficult to say, though locally they are supposed to represent the Coronation of the

Virgin, and Daniel in the Lions' Den. Inside the detail is even more interesting. The columns of what is now the transept arch have capitals, not altogether unlike Norman cushion caps, with the abacus carved with leaves, and all the angles and hollows adorned with rude cable moulding. The bases are even more like such Norman caps reversed, with similar cable moulding and small figures on what, in a cap, would be the truncated ends of the cushions. A low arch leads from each transept into the small chamber from which the stair starts, and between this arch and the pier there runs up a broad band of beautiful foliage: a spray twisting up in circles encloses leaves arranged much after the manner of the Greek honeysuckle. On each side of the gallery are two arched openings, leading, one to the stair and the other to a chamber corresponding to that below. The arches of these openings are curiously carved, and above them runs a broad double cable moulding from which springs the barrel vault.



Not less interesting is the Church of Santa Cristina de Lena, some miles to the south of Oviedo, a church which dates from about the same time, and which was built by an Abbot Flaino as the church of a monastery dedicated to St. Peter and St. Paul. The church consists of an oblong body measuring about 30 feet by 15, with on each side an arcade of six arches exactly similar to those at Santa Maria de Naranco. The barrel vault has unfortunately been replaced by a wooden roof, but the stone strips and medallions remain below the stringcourse to show that in this too it resembled Santa Maria. One bay from the east the arcade is carried across the church in three arches; but here the wall is only carried up a few feet above the arches, is pierced with five perforated panels, and is finished off at the top in three curves corresponding to the arches below; so that the whole is more like a rood screen than is the case at Santa Maria. To the west there projects a small porch, about 10 feet square, with a gallery above, as at San Miguel de Lino; to the east a small square chancel, and on either side transept chapels, all of about the same size. The capitals throughout as well as the buttresses are very like those at Naranco, and the pierced panels on the rood screen and the windows are of the same pattern as those at San Miguel de Lino.*

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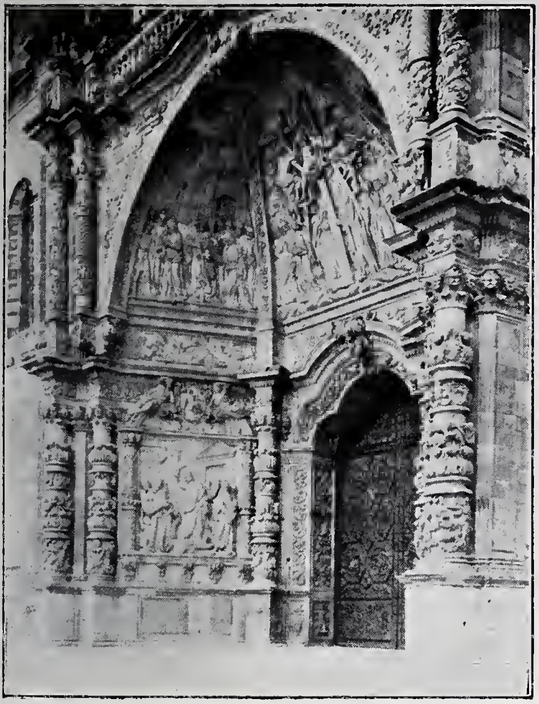
* *Cf.* too the church of San Salvador at Valdediós, near Villaviciosa, a small barrel-vaulted basilica of four bays, with a narthex to the west and three square apses to the east, consecrated in 893, and in some details very like the Naranco churches; also the small church at Priesca.

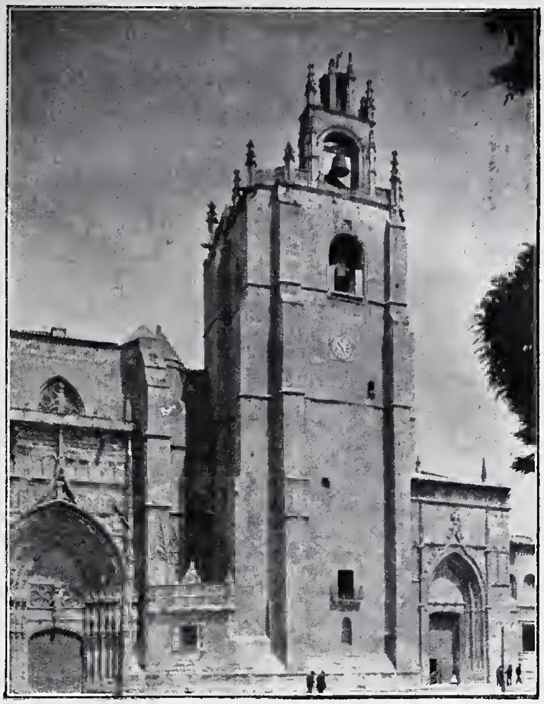
Palencia.—The city of Palencia stands a few miles north of the main line from Burgos to Madrid on the railway that connects North-western Spain with the capital. Its immediate surroundings are even more dreary than is the case with most of the towns of Old Castile, a flat sun-baked plain encircled by hills like grey refuse heaps from a mine, and never a tree to be seen except on the banks of the stony stream which runs round one side of the town. Nor is the town itself very attractive or picturesque. It is singularly wanting in the old palaces which give interest to so many decayed Spanish cities, and only two churches, the Cathedral and San Miguel, have sufficiently escaped destruction and rebuilding to be worthy of much notice. Of these San Miguel is the older, with a chancel of the late twelfth century, a nave and west tower of the early thirteenth. The nave of three wide bays is remarkable for a simplicity and correctness of detail, which with the absence of any old reredoses, stalls, or screens make the interior singularly cold and cheerless, and the west tower being divided into two almost exactly equal stories, of which the upper contains a large rather ill-designed window, and the lower two plain openings above and a two-light window below, resting on one just half the height of either, has a singularly ill-proportioned look—a look probably aggravated by the battlemented parapet which has lately taken the place of overhanging eaves.

If less correct the Cathedral of San Antolin is much more interesting and picturesque. The church is large, consisting of a choir of three bays with apse and encircling aisle and chapels, a broad transept, and spacious aisled nave with flanking chapels. A massive and very picturesque tower stands near the south transept on the south side of the choir, and large and much mutilated cloisters to the south of the nave.

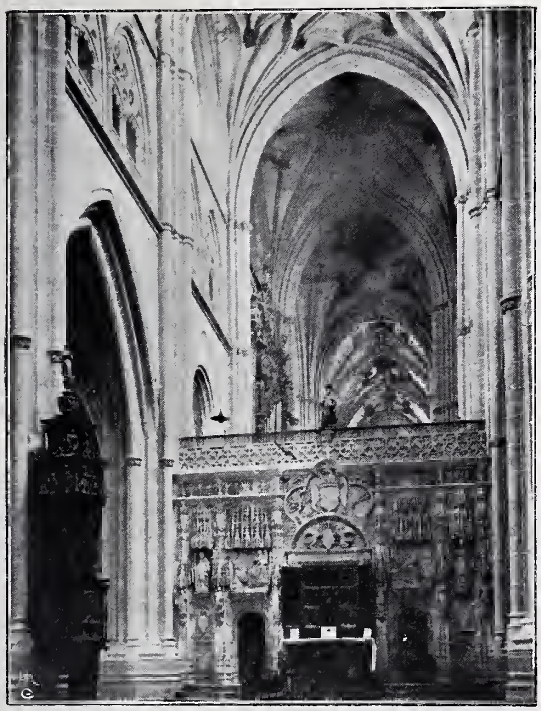
The choir was begun in 1321, but the work must have gone on very slowly, as the details all look a good deal later; indeed by 1486 the work was not nearly yet done, and little of the main vault had been built. The dates can be more or less ascertained from the coats of arms which are found on the main vault. The vault of the Capilla Mayor has the arms of Pedro de Castillo, bishop from 1440–1461, that of the transept those of Alonso de Burgos, 1485–1499; but curiously in the nave the three western bays show the arms of Bishop La Gasca, 1550–1561; and the two eastern those of Bishop Zapata, 1569–1577; though it is known that the coro was moved to its present position under Zapata's vault at least fifty years before his time; so that either the nave can have had only a temporary roof before he became bishop, or else he and Bishop La Gasca only finished the carving of the already existing bosses. The windows of the choir chapels have good geometric tracery, but all the others throughout the church are filled with curiously ill-arranged specimens of the transition from Gothic to Renaissance. The south transept has a fine but much decayed door, the Puerta del Obispo, with above it the arms of Bishop Mendoza, 1472–1485, and Bishop Fonseca, 1505–1514. East of the tower is another door opening into a sort of lesser transept. The tower is perfectly plain, buttresses and belfry windows alike being quite without ornament; and it owes its undoubted beauty to its massiveness and to the picturesque bell gable which rises high on the southern side. Unfortunately inside the ritual arrangements are such as to make the great size of the church as useless as possible. The high altar, instead of standing in the main apse, is placed two bays to the west, with behind it a fine retablo, given by Bishop Sarmiento, 1525–1534, which, with its twenty-six effigies of saints and twelve painted panels, rises almost up to the vault, so as entirely to shut out all view of the apse to the east. Between the retablo and the apse runs the secondary transept, perfectly open from north to south, while the apse itself, reduced to being a parish chapel, is further darkened by having had a lower vault built across it at the level of the aisle arches. But if the ritual arrangements have spoilt the choir, they have done less harm than usual to the nave. The trascoro, or west choir screen, is low, the nave so spacious, with its three aisles of nearly equal width, the



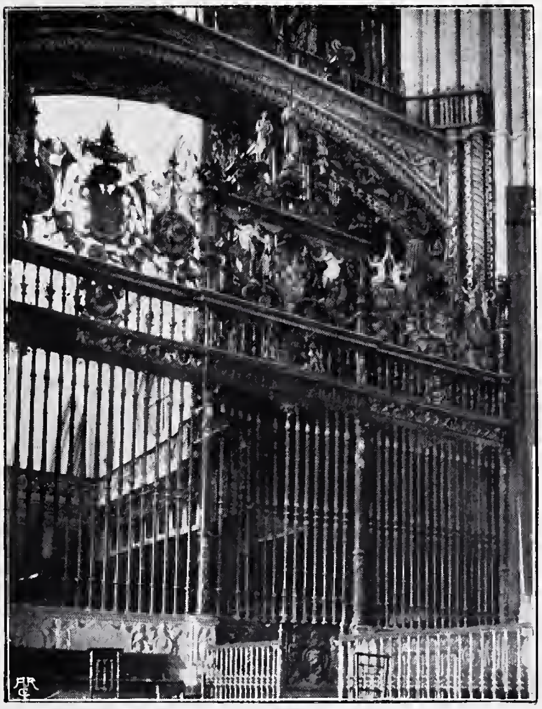
WEST DOOR, CATHEDRAL, ASTORGA.



CATHEDRAL, PALENCIA : TOWER AND PUERTA DEL OBISPO.



CATHEDRAL, PALENCIA : NAVE, SHOWING TRASCORO.



REJA OF CORO, PALENCIA CATHEDRAL.

piers and moulding so much bolder than might have been expected from their date, that with the richly traceried triforium and the chapels, with their elaborate screens and retablos at the sides, the whole has a very striking effect of size and stateliness. In the choir and transepts the triforium has in each bay one very broad segmental-headed opening of many lights, at the north end of the transept even of fourteen lights, with very elaborate tracery; in the nave triforium there are two pointed arches to each bay of two segmental-headed lights, with richly cusped tracery above and an elaborately pierced parapet below. The coro was, it is known, moved to its present place in the two eastern bays of the nave in 1518, before the vault above was finished; but the trascoro must have been, at any rate, begun some years before. It is an extremely elaborate piece of work, in the best late Gothic style. In the middle is an altar having for reredos a fine picture in eight panels painted for Bishop Fonseca, in Flanders, in 1505, when he was in Brussels attending Dona Juana, daughter of Ferdinand and Isabella, and mother of Charles V. Above the reredos under a semicircular arch are Bishop Fonseca's arms surmounted by an archbishop's hat, which shows that this part at least was not finished till after his translation to Santiago in 1514. Above this arch under a strangely twisted moulding are the arms of Spain with the yoke of Isabella on the left and the arrows (*flechas*) of Ferdinand on the right. On either side of the altar, between richly carved niches, are two doors (an unusual feature) giving access to the choir, and above them, under very elaborate canopies, are (over the southern) the Martyrdom of St. Ignatius, and (over the northern) a Scene from the Life of St. Bernard, while beyond the doors are more niches and saintly figures. Above the canopies runs a rich plateresque frieze, and over everything a cornice crowned by an elaborate and rather German-looking cresting of interlacing branches.

Of the many elaborate iron screens or "rejas" the largest is that enclosing the Capilla Mayor: it was given by Don Antonio de Rojas about 1520,* having cost 2,000 ducats, and is comparatively simple. It has two rows of finely turned baluster shafts, one above the other, separated by a plain cornice, and is finished above with tall vases and shields surrounded by scrolls and leaves. Far richer is the screen which faces it and encloses the coro. It was long in making, as it records the visits of Charles V. and Pope Adrian VI. to Palencia in 1522, and yet was not ready till 1571. The reja at the sides rests on beautifully carved and inscribed limestone panels,† and corresponding with them the lower part of the gate in the middle has finely modelled panels of bronze. The long shafts are very elegantly designed, and the slight Corinthian columns which form the gate posts are beautifully fluted above and covered with very delicate ornament below. Above these columns and shafts runs an entablature whose frieze is full of masks and little figures at the sides, and has over the gate "Soli Deo Honor et Gloria." Above this entablature is another row of shafts, very much shorter than those below; then another slighter cornice; and above it all a wonderful cresting raised high over the gates, of vases, shields, banners, and figures, including the symbols of the Evangelists in four circular plaques, the whole, gilt and painted, making probably the finest reja out of Toledo or Granada.

From Palencia it is only a few miles to Venta de Baños, the junction on the main line from Paris to Madrid, from which the railway branches off which leads to the little known regions of Galicia, the Asturias, and northern Leon. Of the many travellers to pass through the junction, few think of making this long journey to the north-west, although it is a journey well worth making. Nowhere else in Europe is there such an unusual group of buildings as the primitive "Gothic" churches near Oviedo—interesting not only because they are themselves picturesque and even beautiful, but because they are almost the only buildings left us to show how those Goths built who so long ruled the Peninsula, and what must have been the local manner of construction, plan, and ornament before the incoming of French influence. Again, there is, perhaps, no church even in France which is so perfect an example of all that the great French architects of the thirteenth century sought to attain as is the Cathedral of Leon, especially inside, with its wonderful lightness, its enormous windows, and, above all, its gorgeous glass. In Galicia many unexpected beauties are to be found, as at Orense and Tuy, not to speak of the better-known Santiago. And even were there no fine buildings the scenery alone would well repay a visit, especially the valley or gorge of the Miño and the "rias" of Vigo and Arosa. If the Asturias have not the beautiful purple heaths or the piles of huge granite boulders of Galicia, they have the showy limestone peaks of the Cantabrian Mountains, which can scarcely be surpassed by the Alps or the Pyrenees, and the green and grassy valleys which are so singularly refreshing after the stony dryness of the plains of Leon or of Castile.

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* It was made by Cristóbal Andino.

† The inscription on it runs thus: "Adrianus VI. pontifex maximus, Carolus V. Romanorum imperator, Hispaniarum rex, hujus nominis primus, hanc sacram subeunt ædem intra unius anni cursum, præsule Petro Ruiz de la Mota. 1522."

INCORP. 1837 1887

9, Conduit Street, London, W., *22nd July* 1905.

CHRONICLE.

THE MIDSUMMER EXAMINATIONS.

Preliminary.

The Preliminary Examination, qualifying for registration as *Probationer R.I.B.A.*, was held in London and the undermentioned provincial centres on the 6th and 7th June. Of the 245 candidates admitted, claims for exemption from sitting for the examination were allowed to the number of 53. The remaining 191 candidates were examined, with the following results :—

District	Number Examined	Passed	Relegated
London	78	48	30
Belfast	1	1	—
Birmingham	8	5	3
Bristol	15	11	4
Cardiff	7	2	5
Glasgow	6	4	2
Leeds	26	17	9
Manchester	31	14	17
Newcastle	19	15	4
	191	117	74

The passed candidates, with those exempted—numbering altogether 170—have been registered as Probationers. The following are their names and addresses :—

ADAMS : William Naseby ; St. Augustine's Vicarage, Shaw Street, Liverpool [*Masters* : Messrs. Anderson & Crawford].

ALLAN : Joseph Anderson ; 47 View Terrace, Aberdeen, N.B. [*Master* : Mr. A. H. L. Mackinnon *].

ALLAN : Thomas Steele ; 167 Greenhead Street, Glasgow [*Master* : Mr. John Fairweather *].

ALLEN : Samuel Percy ; Myrtle House, Bath Street, Cheddar, Somerset [Merchant Venturers' Technical College, Bristol].

ARCHER : Charles Sidney ; Ivydene, Johnstone, N.B. [*Master* : Mr. Robert A. Hamilton].

ARNOTT : Charles Dudley ; "Seacroft," The Cliffs, Gorleston-on-Sea [Great Yarmouth Grammar School].

ARTHUR : George Theodore ; 27 Gilbert Road, Redfield, Bristol [*Master* : Mr. Hanson].

AYNSLEY : John Thomas Oliver ; 146 Roker Avenue, Sunderland [*Masters* : Messrs. William * & T. R. Milburn *].

AYRE : David Wickham ; 71 Patrick Street, Cork.

BADCOCK : Walter Frederic Edgar ; Thornfield, Bishop Auckland [King James I. Grammar School, Bishop Auckland].

BAIN : Victor ; Tunstall View, Ashbrook Road, Sunderland [*Master* : Mr. G. T. Brown].

BANKS : William Arthur ; 14 Chapel Terrace, Stafford [*Master* : Mr. Walter H. Cheadle].

BANKS-SMITH ; Sydney Richard ; 19 Cloudesley Road, St. Leonards-on-Sea [*Masters* : Messrs. Pigott & Oxley].

BARROW : Thomas Henry ; 100 Shenley Road, Camberwell, S.E. [Wilson's Grammar School, Camberwell].

BATTY : William Arnold ; Ivy House, Wolsingham, co. Durham [*Master* : Mr. G. G. Hoskins *].

BEAL : Joseph Kyle ; Kyleville, Heaton Road, Newcastle-on-Tyne [Newcastle Modern School].

BEETHAM : Bentley ; 95 Stanhope Road, Darlington [*Master* : Mr. W. Hargreaves Bourne *].

BELL : William ; 73 Horton Lane, Bradford [*Master* : Mr. Jas. Barbour].

BENNETT : Thorold ; 20 Darnley Road, Gravesend [*Master* : Mr. E. J. Bennett *].

BINNIE : William Bryce ; "Willisdene," Arthur Avenue, Airdrie [*Master* : Mr. Robert A. Bryden *].

BLACKMORE : Alfred Charles ; Belmont, Cottingham, E. Yorks [Hull Technical School].

BRAMWELL : Guy ; The Beeches, Gargrave-in-Craven, Yorks [*Master* : Mr. W. H. Thorp *].

BRETT : William George ; 75 Hill Road, Clevedon, Somerset [*Master* : Mr. A. R. F. Trew].

BRITTAN : Harold William ; 97 Sydenham Road, N. Croydon [*Master* : Mr. Arthur Latimer Dartnell].

BROCK : Alan St. Hill ; "Haredon," N. Cheam, Surrey [*Master* : Mr. Sidney R. J. Smith *].

BRODIE : James ; 21 Comelybank Street, Edinburgh [*Masters* : Messrs. Reid & Wittet].

BROOMHALL : Thomas Hargreave ; Haigh Hall, Haigh, near Barnsley, Yorks [*Master* : Mr. J. Vickers Edwards].

BROWN : William George ; 2 North Street, Leighton Buzzard, Beds [*Master* : Mr. J. T. Lawrence].

BRYETT : Augustus ; 37 Ducie Street, Greenheys, Manchester [*Master* : Mr. G. H. Willoughby *].

BURGESS : Sydney Hollinshead ; Stanhope Avenue, West Hartlepool [*Master* : Mr. F. W. Turner].

BUTLIN : Percy ; "Westview," Rothwell, Northants [*Master* : Mr. H. Cayley *].

CAITHNESS : Wilfrid Westmacott ; "Berriedale," Marchwood Crescent, Ealing, W. [*Master* : Mr. Cole A. Adams *].

CHAMPION : Horace Denne ; 1 Lynn Street, Balham, S.W. [Roan School, Greenwich].

CHIPPINDALE : Henry Murray ; Scholes, near Leeds [*Master* : Mr. Butler Wilson *].

CHRISTIE : Cameron ; Elmbank, High Pleasance Avenue, Falkirk [*Master* : Mr. John P. Goodsir].

COATES : Percy ; 33 Rising Street, Sheffield [Sheffield School of Art & Technical School].

COLE : Albert Victor ; 14 St. John's Road, Watford, Herts [Thanet College, Margate].

COLVILLE : David ; 179 Rosemount Place, Aberdeen [*Master* : Mr. John Rust].

COOK : William Bertram ; 41 Bath Street, Huddersfield [*Master* : Mr. J. W. Cocking].

COOMBS : George John ; 25 Portman Road, Boscombe, Bournemouth, Hants [Architectural School, Royal College of Art].

COYLE : Frank ; Rose and Crown Hotel, Blackhill, co. Durham [*Masters* : Messrs. Newcombe & Newcombe *].

CRADDOCK : Reginald ; Lyndale Park Road East, Wolverhampton [*Master* : Mr. F. T. Beck].

CROOK : Richard Hermon ; 6 Waterloo Road, Birkdale, Southport [*Masters* : Messrs. Matear * & Simon].

DAVIDSON: John Adam; Avoca, Kensington Road, Knock, co. Down, Ireland [*Masters*: Messrs. Young & Mackenzies].
DEWHIRST: Ralph Henry; 14 Duchy Road, Harrogate, Yorks [*Masters*: Messrs. Perkin * & Bulmer *].
DOGGETT: Frank Augustus Bradbury; Abbey Lodge, Beche Road, Cambridge [*Master*: Mr. T. D. Atkinson *].
DURRANT: Arthur Michael; Leverstock Green, Hemel Hempstead [Marlborough College].
ECKSTEIN: Thomas Conrad; 113 Upper Villiers Street, Wolverhampton [*Master*: Mr. F. T. Beck].
EMERY: Burkett John; Providence House, Park Road, Lowestoft [*Master*: Mr. R. Scott Cockrill *].
EMMS: Harry Donald Hastings; 91 Baxter Avenue, Southend-on-Sea [High School, Norwich].
FETHERSTONE: Reginald Walter; 58 Palace Street, Canterbury Kent [*Master*: Mr. Andrew Bromley].
FISHER: William Sefton; Charlecote, Hatton Park, Wellingborough [*Master*: Mr. Talbot Brown *].
FITZGERALD: George Edmonds; 77 Guilford Street, Russell Square, W.C. [*Master*: Mr. W. S. Law].
FLETCHER: Eric Graham; 12 Greenbank, Ulverston, Lancashire [High School, Ulverston].
FOURDRINIER: Norman Douglas; The High House, Brook Green, W. [St. Paul's School, W.].
FURNISS: Richard William; 4 Radmoor Road, Loughborough [*Masters*: Messrs. Barrowcliff & Allcock].
GARROW: Robert Thompson; 56 Albury Road, Aberdeen, N.B. [*Master*: Mr. James Souttar *].
GODFREY: Henry Victor; 26 Ingersoll, Shepherd's Bush, W. [*Masters*: Messrs. Willis & Leslie].
GRAY: James Henry; c/o Fred Rowntree, Esq., 11 Hammersmith Terrace, W. [*Master*: Mr. Fred Rowntree].
GREEN: William, jun.; 18 Hosefield Avenue, Aberdeen [*Master*: Mr. Robert G. Wilson *].
GREIG: Stanley; 15 Broadlands Terrace, Broomwood Road, Clapham Common [*Masters*: Messrs. Metcalf & Greig].
GRIEVES: Henry, jun.; The Croft, "Westoe," South Shields [*Master*: Mr. Henry Grieves *].
GRIFFIN: Frank Vivian; West Lodge, Ealing, W. [*Masters*: Messrs. Hall-Jones & Cummings].
GRISSELL: Francis; 22 Horbury Crescent, Notting Hill Gate, W. [*Masters*: Messrs. Nicholson & Corlette *].
GROUND: John Kingston; 3 Dent's Road, Wandsworth Common, S.W. [*Masters*: Messrs. Forsyth * & Maule].
AP GRUFFYDD: Caradog Owain; "Cartref," Wellingborough [Northampton County School].
HADWEN: Noël Waugh; 17 Holland Park Gardens, W. [*Masters*: Messrs. W. H. Romaine-Walker * & Besant].
HAGELL: Frederic William; 32 Harberton Road, Whitehall Park, N. [*Masters*: Messrs. W. Dunn * & R. Watson *].
HALL: Edwin Stanley, B.A.; Hillcote, West Dulwich, S.E. [Architectural Association].
HALL: Harold Saunderson; 47 Albert Grove, Nottingham [*Master*: Mr. W. D. Pratt].
HALLATT: Charles Arnold; The Elms, Wath-on-Dearne, near Rotherham [*Master*: Mr. H. I. Potter *].
HANTON: Peter Kydd; 15 Colebrooke Row, Islington, N. [*Master*: Mr. Hugh Gavin].
HARRISON: William Holgate; Avenue House, Whalley, Blackburn [*Masters*: Messrs. Sames & Green].
HARTLAND: Kenneth Wright; 23 Belgrave Road, Tyndalls Park, Clifton, Bristol [*Master*: Mr. F. Shove].
HAWKINS: Edward Hewlett; 35 The Avenue, Southampton [*Master*: Mr. S. K. Pope].
HEATH: Francis; Grove House, Warsop, near Mansfield, Notts [*Masters*: Messrs. Vallance * & Westwick].
HEELIS: James; 48 St. George's Road, Bolton, Lancs [*Masters*: Messrs. Pottsall, Son, & Hennings *].
HENSON: Frank Edward; Eversleigh, Midland Road, Wellingborough [*Masters*: Messrs. Talbot Brown * & Fisher *].
HINDMARSH: John Roger; Glenhome, Wingrove Road, Newcastle-on-Tyne [*Masters*: Messrs. Badenoch & Bruce].
HINTON: John Garfield; 56 Queen Street, Exeter [*Masters*: Messrs. Austin & Paley *].
HOOPER: Charles Owen; 3 College Terrace, Avenue Southampton [*Master*: Mr. S. Kelway Pope].
HOWITT: Thomas Cecil; Brooklyn, Hucknall Torkard [*Master*: Mr. A. N. Bromley *].
HUGHES: Alfred Ernest; Magnus Grammar School, Newark-on-Trent.
JACKSON: William Henry; "Fern Bank," 59 Endlesham Road, Balham [St. Mary's School, Balham].
JEFFERY: Reginald; 31 Hardinge Road, Ashford, Kent [*Master*: Mr. A. E. Lacey *].
JEW: Reginald Edward Tyler; 9 London Road, Reading [*Master*: Mr. J. Hugh Goodman].
JOHNSON: Leonard Poole; 9 Kennington Terrace, S.E. [Architectural Division, King's College].
KAULA: William; c/o Mrs. Morris, 68 Belsize Park, South Hampstead [*Masters*: Messrs. Rindsfüsser & Kühn].
KNAPMAN: Harry Lethbridge; 20 Ainger Road, Primrose Hill, N.W. [*Masters*: Messrs. J. W. Rowell & Son].
KOHLER: Hans Ferdinand; King's College, London.
LEGAT: Charles Stanley; 13 Park Terrace, Sunderland [*Master*: Mr. John Eltringham].
LUCAS: John Douglas; "Sandmore," Send, Woking [Polytechnic Architectural School].
McALEER: Joseph Clifton O'Connell; 29 Pow Street, Workington [*Master*: Mr. A. H. Coyle].
MARSHALL: Francis William; Bank House, Solihull, near Birmingham [*Masters*: Messrs. J. A. Chatwin * & Son].
MASTERS: Frank Norman Denison; St. Vincent, Doncaster [*Masters*: Messrs. E. M. Gibbs * & C. Flockton *].
MAXWELL: Francis John McCallum; 91 St. Alban's Avenue, Bedford Park, W. [*Master*: Mr. John Parker].
MAYHEAD: Reginald; 6 Duke Street, Reading [*Master*: Mr. J. Hugh Goodman].
MEDLEY: Clifford; 63 Cliffe Street, Keighley, Yorks [*Master*: Mr. W. G. Smithson *].
MENNIE: Frederick Edward; 46 Harford Street, Mile End, E. [*Master*: Mr. W. A. Lewis].
MICHALOWSKY: Henry; 61 Downs Park Road, Dalston, N.E. [Central Foundation Schools, London].
MILLS: William Stead; 18 Alexandra Road, Leicester [*Master*: Mr. Walter Brand *].
MONK: Harry; West Auckland, Durham [*Master*: Mr. Livesay].
MORGAN: David Howell; Canal Head House, Aberdare [*Master*: Mr. W. Beddoe Rees].
NAIRNE: George C.; Pretoria Villa, Lovat Road, Inverness [*Master*: Mr. John Squair].
NEEDHAM: Thomas Henry; Teigh Lodge, Rosemount Road, Acton [Ealing Grammar School].
O'REILLY: Herbert Wilson; 5 Grange Crescent, Gloucester Road, Cheltenham [*Master*: Mr. E. J. Jones].
OWEN: Owen Llewellyn; 3 Oatlands Terrace, Swansea [*Master*: Mr. Glendinning Moxham].
PAGE: Walter McPherson; 30 Trebovir Road, Earl's Court, S.W. [Regent Street Polytechnic].
PERRY: Harold Charles; "Rockside," Richmond Park Road, Bournemouth [*Master*: Mr. T. Stevens *].
PETO: Alfred Norman; 17 Tanfield Street, Leeds [*Masters*: Messrs. Danby & Simpson].
POCOCK: John Carlyle; "Mesylls," Chiddingfold, Surrey [*Master*: Mr. H. Pocock].
POLGLASE: Ernest John; 153 White Ladies Road, Clifton, Bristol [*Masters*: Messrs. Oatley * & Lawrence *].

POLLAND: James; 3 Walmer Terrace, High Street, Holywood [*Master*: Mr. F. W. Henry].

POWELL: Frederick; Kirkgate Terrace, Birkenshaw, Bradford, Yorks [Bradford Grammar School].

POWELL: Herbert Cecil; Engelberg, Lightwood Road, Buxton, Derbyshire [*Master*: Mr. W. R. Bryden *].

PURCHON: William Sydney; 6 Moring Road, Tooting Common, S.W. [*Masters*: Messrs. Brodrick, Lowther & Walker].

PYWELL: Reginald; Cumberland House, Hanwell, W. [*Master*: Mr. Wm. Pywell *].

RAHBULA: Ernest Alexander Rahler; 57 Kenninghall Road, Clapton, N.E. [*Master*: Mr. T. Gibson].

RATTENHUBER: Franz; 6 Frithville Gardens, Shepherd's Bush [Division of Architecture, King's College].

REES: William David; 1 Teilo Street, Cathedral Road, Cardiff [King's College, Taunton, & Luctor School, Herefordshire].

RHODES: Wilfrid Craven; 91 Oakley Street, Chelsea, S.W. [*Master*: Mr. H. C. Lander *].

RIGBY: Leonard; 8 Springbridge Road, Alexandra Park, Manchester [Ampleforth College, Yorks].

RILEY: Richard Holden; "The Sycamores," Lower Darwen [*Masters*: Messrs. Briggs * & Wolstenholme *].

ROLLO: Robert Leslie; 17 Clifford Street, Paisley Road, Glasgow [*Master*: Mr. James Lindsay *].

ROSS: Sydney Walter; 31 Moreton Place, Belgravia, S.W. [*Masters*: Messrs. Houston * & Houston *].

ST. AUBYN: Francis Joseph; 109 Albert Bridge Road, Battersea [St. George's College, Weybridge].

SCAIFE: Edgar John; 125 Westbrook Street, Bolton, Lancashire [*Master*: Mr. T. E. Marshall].

SELWAY: Edward Ralph Douglas; Parkfield, Stourbridge, Worcestershire [*Master*: Mr. H. E. Folkes].

SHANKS: Norman Fraser; 13 Stamford Street, Old Trafford, Manchester [*Masters*: Messrs. C. K. & T. C. Mayor *].

SHEATH: Albert George; Fort View, 63 Royal Parade, Eastbourne [*Masters*: Messrs. Oakden & Hawker].

SHELBOURN: Edward Piccaver; 16 Park Road, Melton Mowbray [King's School, Canterbury].

SMEED: Charles Alfred; 24 West Ham Lane, Stratford [West Ham Technical Institute].

SMITH: Frank William; 36 William Street, Newark-on-Trent, Notts [*Masters*: Messrs. Brewill * & Baily].

SMITH: James Richard Bullen; Furzecote, near Botley, Hampshire [King's School, Canterbury].

SMITH: Luther; 12 Albany Terrace, Victoria Road, Lockwood, Huddersfield [Messrs. W. J. Morley * & Son].

SPURLING: Edward Alan; 36 Magdalen Road, St. Leonards-on-Sea [*Masters*: Messrs. Pigott & Oxley].

STANLEY: Gerald; Sunny Croft, Trowbridge, Wilts [*Masters*: Messrs. Silcock * & Reay *].

STEAD: Milton James; 147 Pellon Lane, Halifax, Yorks [*Master*: Mr. Fred. F. Beaumont].

STOCK: Christopher Herbert; Rocliffe Vicarage, Carlisle [Carlisle Grammar School].

STUBBS: Edward Woodhouse; Thornhill House, College Road, Norwich [*Master*: Mr. W. J. Dunham].

TALLBOY: Harold Charlton; 4 Kensington Gardens, Cranbrook Park, Ilford, Essex [*Masters*: Messrs. Clare & Ross].

THOMPSON: George Clifford; c/o Mrs. Richardson, 30 Windermere Street, Gateshead [*Masters*: Messrs. Marshall & Tweedy].

THORN: Arthur Kenneth; 24 Earlsfield Road, Wandsworth Common, S.W. [*Master*: King's College School, Wimbledon].

TILDEN: Philip Armstrong; The Oaks, Northwood R.S.O., Middlesex [Rugby School].

TOONE: Algernon John Edmund; 228 Plymouth Grove, C.-on-M., Manchester [*Master*: Mr. J. Lindsay Grant].

TREPESS: Hugh; 3 Rock Terrace, Warwick [*Masters*: Messrs. Cossins, Peacock, & Bewlay].

TURNER: Kenneth Walford; c/o R. C. Wrinch, Esq., 16 Museum Street, Ipswich [*Master*: Mr. Raymond C. Wrinch *].

VALLANCE: George Austin; Avondale, Mansfield, Notts [*Master*: Mr. R. Frank Vallance *].

VINCENT: Percy John Newby; 7 Queensgate Terrace, Plymouth [*Master*: Mr. John H. Vincent].

WALKER: Harold; Priory House, Hessle Common, Hull [Hymers College, Hull].

WALKER: Walter Dean; Savile Lodge, Halifax [Messrs. R. Horsfall & Son].

WARREN: Henry George; 21 Powderham Crescent, Exeter [*Master*: Mr. C. G. Warren].

WATKINSON: Harold Edward; 10 Alloa Road, Goodmayes, Essex [*Master*: Mr. William Goldsmith *].

WATSON: Frank Edward; Weymouth Lodge, South Ealing, W. [*Master*: Mr. A. B. Houchin].

WEBB: Reginald William; Somerset Villa, Kensington Hill, Brislington, Bristol [*Master*: Mr. A. R. F. Trew].

WEBSTER: Francis Poole; Bircholme, Devonshire Road, Totley Rise, Sheffield [*Master*: Mr. F. G. Buxton].

WEST: Archibald Buller; The Knowl, Abingdon, Berks [*Master*: Mr. J. G. T. West].

WEST: John Lacey; The Knowl, Abingdon, Berks [*Master*: Mr. J. G. T. West].

WHITBY: Charles; St. John's Vicarage, Sandown, I.W. [*Master*: Mr. James Newman].

WHITHAM: Nelson Alfred; Mount Vernon Road, Barnsley, Yorks [*Master*: Mr. P. A. Hinchliffe *].

WILDE: Everett Sydney; Northcote, Stafford Place, Weston-super-Mare [*Masters*: Messrs. Wilde & Fry].

WILKINSON: William Henry; 97 Northgate, Halifax, Yorks [Halifax New School].

WINCH: Arthur; Oakwood Avenue, Roundhay, near Leeds [*Master*: Mr. W. A. Hobson].

WINFIELD: John Enright; 36 Mornington Rd., Regent's Park, N.W. [Polytechnic School of Architecture].

WOOD: Philip Mantes; c/o Edgar C. Mills, Esq., 40 Victoria Buildings, Manchester [*Master*: Mr. T. C. Grimble *].

WOODHOUSE: Brian William; 15 Chatsworth Square, Carlisle [Grosvenor College, Carlisle].

WORNUM: George Grey; 58, Belsize Park, Hampstead, N.W.

WORTH: Leslie; 45 Old Christchurch Road, Bournemouth [*Masters*: Messrs. Brewerton & Shepherd].

WRIGHT: Stanley; 100 Crompton Road, Macclesfield [*Master*: Mr. Jabez Wright].

YOUNG: Harold; 2 Stubbington Avenue, North End, Portsmouth [Mile End House Academy, Landport].

The asterisk (*) denotes members of the Institute.

Intermediate.

The Intermediate Examination, qualifying for registration as *Student R.I.B.A.*, was held in London and the undermentioned provincial centres on the 6th, 7th, 8th, and 9th June. One hundred and fifty-seven candidates were examined, with the following results:—

District	Number Examined	Passed	Relegated
London	93	44	49
Bristol	10	6	4
Glasgow	5	5	0
Leeds	18	13	5
Manchester	24	15	9
Newcastle	7	5	2
	157	88	69

The passed candidates, who have been registered as Students, are as follows, the names being given in order of merit as placed by the Board of Examiners:—

DAVY: Clifton Robert [*Probationer* 1904]; The Chestnuts, Maidenhead [*Master*: Mr. R. C. Davy].

THOMASSON: William Joseph Mate [*Probationer* 1899]; Hatton Villa, St. Paul's Road, Bournemouth [*Master*: Mr. A. Hill Parker *].

HARVEY: William [*Probationer* 1900]; 55 Edgware Road, W. [*Master*: Mr. George Harvey *].

HENDERSON: Andrew Graham [*Probationer* 1903]; 49 Trefoil Gardens, Shawlands, Glasgow [*Masters*: Messrs. Ninian, Macwhannell & John Rogerson *].

JENKINSON: John Mansell [*Probationer* 1899]; 35 Wostenholm Road, Sharrow, Sheffield [*Masters*: Hemsoll & Paterson *].

BINNING: Alan [*Probationer* 1902]; 101 Shooter's Hill Road, Blackheath, S.E. [*Master*: Mr. James S. Gibson *].

MOSS: Harry [*Probationer* 1898]; 52 Manley Road, Whalley Range, Manchester [*Master*: Mr. Fredk. W. Dixon].

MORLEY: Eric [*Probationer* 1901]; 26 North Park Road, Bradford, Yorks [*Master*: Mr. W. J. Morley *].

LIDBETTER: Herbert [*Probationer* 1902]; 21 Castle Street, Carlisle [*Master*: Mr. H. Higginson].

KENYON: Arthur William [*Probationer* 1901]; Crowley House, Upperthorpe, Sheffield [*Master*: Mr. H. L. Paterson *].

BRAY: Arthur George [*Probationer* 1901]; 16 Bradford Avenue, Bolton [*Masters*: Messrs. Bradshaw * & Gass *].

WEARING: Stanley John [*Probationer* 1903]; 6 Millstone Lane, Leicester [*Masters*: Messrs. Everard * & Pick *].

CONSTABLE: Arnold Sutherland [*Probationer* 1901]; Ingleholm, Stocksfield-on-Tyne, Northumberland [*Master*: Mr. J. Walton Taylor *].

CORNEY: John William [*Probationer* 1903]; 17 Well Close Place, Blackman Lane, Leeds [*Master*: Mr. Fredk. Musto *].

WOODS: Frank [*Probationer* 1902]; Shoppenhangers, Maidenhead [*Masters*: Messrs. Davy & Salter *].

ADAM: David Alexander [*Probationer* 1900]; 55 Rothbury Terrace, Heaton, Newcastle-on-Tyne [*Masters*: Messrs. Badenoch & Bruce].

DONALDSON: Frank [*Probationer* 1904]; Bedford Lodge, Bishop Auckland.

DAWSON: Noel John [*Probationer* 1900]; Foxhall, near Ipswich, Suffolk [*Master*: Mr. T. W. Cotman].

EDMONDS: Leonard William [*Probationer* 1903]; 32 Old Park Avenue, Nightingale Lane, Balham, S.W. [*Master*: Mr. H. O. Cresswell *].

MEAKIN: Frank [*Probationer* 1899]; 17 River Street, Myddelton Square, E.C. [*Masters*: Messrs. C. Bell-Withers & Meredith].

SPURR: Willie Rowland [*Probationer* 1899]; "Rouse Mill," Batley, Yorks [*Masters*: Messrs. W. Hanstock & Son].

MAY: Percy [*Probationer* 1902]; 266 Upland Road, Dulwich, S.E. [*Master*: Mr. Stephen Ayling *].

ORME: Robert Wright [*Probationer* 1902]; 91 Queen's Road, Oldham [*Master*: Mr. Thomas Taylor].

DUNNAGE: Gerald Eckett [*Probationer* 1903]; "Hill View," Hampton Road, Worcester Park, Surrey [*Master*: Sir Aston Webb, R.A. *].

CAREY: James [*Probationer* 1904]; Architects' Department, L.C.C., 13 Charing Cross, S.W. [*Masters*: Messrs. R. Keith & Son].

BROWNRIGG: Annesley Harold [*Probationer* 1903]; 197 East Dulwich Grove, S.E. [*Masters*: Messrs. Ernest George * & Yeates].

HILL: Thomas Harold [*Probationer* 1899]; Fernside, Hale, Cheshire [*Masters*: Messrs. Woodhouse * & Willoughby *].

HICKS: Henry Leicester [*Probationer* 1902]; 3 Roseworth Villas, Gosforth, Newcastle-on-Tyne [*Masters*: Messrs. Hicks & Charlewood *].

WILLS: Gerald Berkeley [*Probationer* 1902]; c/o Reginald Blomfield, Esq., 1 New Court, Temple, E.C. [*Master*: Mr. Reginald Blomfield].

LING: Richard Bertram [*Probationer* 1902]; 53 Dorothy Road, Lavender Hill, S.W. [King's College and Battersea Polytechnic]

ABEL: Archie James Thomas [*Probationer* 1904]; 72 Studley Road, Clapham, S.W. [H.M. Office of Works Architectural Department].

RUSBRIDGE, Arthur [*Probationer* 1903]; 241 Oxford Road, Reading, Berks [*Masters*: Messrs. Charles Smith * & Son *].

YOUNG: Robert Clifford [*Probationer* 1902]; 2 Eastfield Road, Cotham, Bristol [*Master*: Mr. Geo. H. Oatley *].

PRITCHARD: William, jun. [*Probationer* 1902]; Highfield View, Quernmore Road, Lancaster [*Master*: Mr. Joseph Parkinson].

HARTNELL: Archibald Philip [*Probationer* 1904]; 5 West Shrubbery, Redland, Bristol [*Master*: Mr. Harold Smith *].

BIRKETT: Stanley [*Probationer* 1901]; 10 Central Road, West Didsbury, Manchester [*Master*: Mr. J. Lindsay Grant].

SIMPSON: Cecil Hamilton [*Probationer* 1904]; 15 Woburn Place, Russell Square, W.C. [*Masters*: Messrs. Pite * & Balfour *].

WHITEHEAD: William [*Probationer* 1903]; 79 Harehills Avenue, Leeds [*Master*: Mr. W. H. Thorp *].

CORFIELD: Claude Russell [*Probationer* 1902]; Park Rd., Falmouth [*Masters*: Messrs. Ewen, Harper & Bros.]

RUSHWORTH: Tom Sadler [*Probationer* 1900]; 109 Fentiman Road, Clapham Road, S.W. [*Master*: Mr. F. G. Knight].

NICHOLLS: Leonard Sheldon [*Probationer* 1902]; Llys Gualia, Hamilton Road, Handsworth, Birmingham [*Masters*: Messrs. Garley & Parsons].

SALWEY: Jasper Philip [*Probationer* 1904]; c/o Messrs. Ravenscroft, Son, & Morris, 22 The Forbury, Reading [*Master*: Mr. W. Ravenscroft].

VAUGHAN: James Henry [*Probationer* 1900]; 58 Argyle Road, Ilford [*Masters*: Messrs. Habershon,* Fawckner & Groves].

HEALEY: Hugh [*Probationer* 1900]; Oak Lea, Catterick Road, Didsbury, Manchester [*Masters*: Messrs. Thomas Worthington * & Son *].

WALGATE: Charles Percival [*Probationer* 1903]; Norwood, Beverley, Yorks [*Masters*: Messrs. Gelder * & Kitchen *].

CLARK: Charles Walter [*Probationer* 1903]; Grimston House, Howdiscombe, Plymouth [*Master*: Mr. H. J. Snell].

HARRAL: William Haigh [*Probationer* 1903]; "Adelaide," Knighton Road, Leicester [*Masters*: Messrs. Draper & Walters].

BOWER: Albert Egerton Lance [*Probationer* 1902]; "Sharavogue," Abbotsford Road, Blundellsands, Liverpool [*Master*: Mr. Arnold Thornley].

WEBSTER: William Ross [*Probationer* 1904]; 4 Rosebery Street, Aberdeen [*Master*: Mr. R. G. Wilson *].

ROWLEDGE: George Henry [*Probationer* 1902]; 11 May Street, Upper Brook Street, Chorlton-on-Medlock, Manchester [*Masters*: Messrs. C. K. & T. C. Mayor *].

YOUNG: John Girtrig [*Probationer* 1903]; Ashburn, Alloa, N.B. [*Masters*: Messrs. Kerr & McCulloch].

COLLINGTON: Frederick Edwin [*Probationer* 1898]; 10 Welbeck Street, Nottingham [*Master*: Mr. Ernest R. Sutton *].

WARLOW: Herbert Gordon [*Probationer* 1902]; Kenwood House, Kenwood Park Road, Sheffield [*Master*: Mr. J. R. Wigfull *].

MALTBY: Charles Burton [*Probationer* 1903]; 12 Newtown Street, Southfields, Leicester [*Masters*: Messrs. Langley & Baines].

REINMANN: Charles Latham [*Probationer* 1902]; Grand Hotel, St. Leonards-on-Sea [*Master*: Mr. Henry Ward *].

WRIGHT: Cecil Laurence [*Probationer* 1898]; 66 Bolingbroke Road, West Kensington, W. [*Master*: Mr. Gifford].

CAMINESKY: Peter [*Probationer* 1903]; 117 Heywood Street, Cheetham, Manchester [*Master*: Mr. F. Fowler].

GOLDSMITH: George Hartley [*Probationer* 1900]; 63 Faulkner Street, Manchester [*Master*: Mr. Jesse Horsfall *].

WHITE: Charles Herbert [*Probationer* 1898]; 82 York Road, Montpelier, Bristol [*Master*: Mr. George H. Oatley *].

FITZROY: Algernon Hugh [*Probationer* 1901]; Cliff Hill Villa, Cross Cliff Hill, Lincoln [*Masters*: Messrs. W. Watkins & Son].

COLLES: Godfrey [*Probationer* 1895]; "Fernicot," Cheadle Hulme, Cheshire [*Master*: Mr. Paul Ogden *].

COTTERELL: Arthur Naish [*Probationer* 1903]; 207 Redland Road, Bristol [*Master*: Mr. Harold Smith *].

CROWE: Joseph John [*Probationer* 1900]; 1 Scholemoor Road, Lidget Green, Bradford, Yorks [*Master*: Mr. C. M. Shiner *].

DOUGLAS: Alexander Houston [*Probationer* 1901]; 232 Portsdown Road, Maida Vale, W. [*Master*: Mr. E. W. Mountford *].

DUNN: Alec [*Probationer* 1901]; 31 St. Michael's Square, Gloucester [*Master*: Mr. Robert Phillips].

ELLISON: William Henry [*Probationer* 1902]; 5 Eldon Street, North Barnsley, Yorks [*Masters*: Messrs. Senior & Clegg].

FULLFORD: Charles George [*Probationer* 1902]; 47 Castle Street, Salisbury [*Master*: Mr. A. C. Bothams].

GROVES: Christopher [*Probationer* 1900]; Penlea, Chester-le-Street, co. Durham [*Master*: Mr. J. Walton Taylor *].

GUTHRIE: Will [*Probationer* 1903]; 69 Marney Road, Clapham, S.W. [A.A. Day School].

HALL: Alner Wilson [*Probationer* 1900]; Crowhurst, 24 Blackesby Avenue, Ealing [*Master*: Mr. Keith D. Young *].

HELM: William Frederick [*Probationer* 1902]; 107 Norse Road, Scotstown, Glasgow [*Masters*: Messrs. Wm. Beardmore & Co.]

HUNTER: Robert Cameron [*Probationer* 1901]; 11 Greenhill Gardens, Edinburgh [*Master*: Mr. Hippolyte Blanc *].

IDLE: Martin [*Probationer* 1899]; 99 The Chase, Clapham, S.W. [*Masters*: Messrs. Beazley & Burrows *].

KEIR: William Ingram [*Probationer* 1902]; The Limes, Melksham, Wilts [*Masters*: Messrs. Silcock* & Reay *].

LEONARD: Frederick George [*Probationer* 1902]; Maidstone Road, Chatham, Kent [*Master*: Mr. G. E. Bond].

MARGARY: Herbert Young [*Probationer* 1902]; 9 Dafforne Road, Upper Tooting, S.W. [*Master*: Mr. G. A. T. Middleton *].

PETCH: Ernest Scott [*Probationer* 1901]; Stepney Rise, Scarborough [*Master*: Mr. J. C. Petch].

PETT: Harold Milburn [*Probationer* 1902]; 28 Stanford Road, Brighton [*Master*: Mr. F. T. Cawthorn].

PHIPP: Reginald Arthur Hyatt [*Probationer* 1901]; Alterfield House, Trowbridge [*Master*: Mr. W. H. Stanley].

PONDER: Claud Vincent [*Probationer* 1900]; 35 St. Helen's Road, Hastings [*Master*: Mr. Henry Ward *].

REED: Charles Albert [*Probationer* 1900]; 63 Lyneth Avenue, Clapham Common, S.W. [*Masters*: Messrs. Woodrow * & Helsdon *].

ROSE: Winter [*Probationer* 1903]; 43 Talworth Street, Roath Park, Cardiff [*Masters*: Messrs. Usher & Anthony].

SAYER: Harvey Robert [*Probationer* 1902]; 45 Choumert Road, Peckham, S.E. [*Master*: Mr. A. Wickham Jarvis *].

SAYNER: John Harold [*Probationer* 1900]; "Penlee," Langcliffe Avenue, Harrogate [*Master*: Mr. G. W. Atkinson].

TWIZELL: George Sterling [*Probationer* 1903]; 8 Larkspur Terrace, Newcastle-on-Tyne [*Masters*: Messrs. Hicks & Charlewood *].

UNWIN: Henry [*Probationer* 1900]; 67 Mornington Road, Bolton [*Master*: Mr. R. Pennington].

WATSON: Frederick James [*Probationer* 1902]; 1 Clare Road, Field Road, Forest Gate, Essex [*Master*: Mr. C. W. Stephens].

WEBSTER: Frank Coutts [*Probationer* 1904]; Hermon Cottage, Broughty Ferry, Scotland [*Masters*: Messrs. Rowland Plumbe,* & Harvey].

The asterisk (*) denotes members of the Institute.

Final.

The Final and Special Examinations, qualifying for candidature as *Associate R.I.B.A.*, were held in London from the 23rd to the 30th June. Of the 74 candidates examined, 21 passed, and the remaining 53 were relegated to their studies. The successful candidates are as follows:—

*BARRETT: Lionel Newman [*Special Examination*]; 23 Sheepcote Road, Harrow.

CARDER: Arthur Alfred [*Probationer* 1898, *Student* 1904]; 4 The Chase, Clapham Common, S.W.

*DOLL: Otto Sigismund [*Special Examination*]; Forst Hans, Lancing, Sussex.

ELKINGTON: George Leonard [*Probationer* 1898, *Student* 1901]; Norfolk House, 7 Laurence Pountney Hill, E.C.

ELY: George Frederick [*Probationer* 1898, *Student* 1899]; 36 Grosvenor Street, Liscard, Cheshire.

FLEMING-WILLIAMS: Charles Lionel [*Probationer* 1897, *Student* 1899]; 56 Kenninghall Road, Clapton, N.E.

FOURACRE: John Leighton *Probationer* 1898, *Student* 1902]; 16 Portland Square, Plymouth.

GRACE: Lionel Upperton [*Probationer* 1897, *Student* 1898]; 30 John Street, Bedford Row, W.C.

LE MAÎTRE: William Courtenay [*Probationer* 1902, *Student* 1903]; 31 Panton Street, Haymarket, S.W.

MARKHAM: John Hatton [*Probationer* 1900, *Student* 1903]; 9 Glenbrook Road, West Hampstead, N.W.

MOORE: Leslie Thomas [*Probationer* 1899, *Student* 1903]; Great Ormesby Vicarage, Great Yarmouth.

MYER: Val [*Probationer* 1900, *Student* 1902]; 14 South Square, Gray's Inn, W.C.

NAYLOR: James John Sydney [*Probationer* 1897, *Student* 1900]; 19 Hanover Square, W.

PRINCE: Harry *Probationer* 1897, *Student* 1900]; 15 Clifford's Inn, Fleet Street, E.C.

QUIRKE: William Dathy [*Probationer* 1901, *Student* 1902]; 52 York Road, Hove, Sussex.

*REID: Edward [*Special Examination*]; 67 Cleveland Road, Sunderland.

*ROBINSON: Percy [*Special Examination*]; 53 Albion Street, Leeds.

SEARLE: Sydney [*Probationer* 1899, *Student* 1903]; Sudbury Priory, Harrow-on-the-Hill, Middlesex.

THOMAS: Noel [*Probationer* 1897, *Student* 1898]; 20 Rochester Road, N.W.
WALKER: John Wilson [*Probationer* 1897, *Student* 1902]; Portleben, Aberdeen, N.B.
WATSON: William Ernest [*Probationer* 1900, *Student* 1902]; 8A Whitehall Place, S.W.

The following table shows the number of failures in each subject of the Final Examination:—

I.	Design	40
II.	Mouldings and Ornaments	37
III.	Building Materials	19
IV.	Principles of Hygiene	16
V.	Specifications	22
VI.	Construction, *Foundations, &c.*	19
VII.	Construction, *Iron and Steel, &c.*	27

* The candidates to whose names an asterisk is prefixed entered for the Special Examination, which is for architects in practice not less than twenty-five years of age, and chief assistants over thirty. Such candidates are exempted, by special resolution of the Council, from the Preliminary and Intermediate Examinations, and from submitting "Testimonies of Study."

Regulations for Architectural Competitions.

The Special General Meeting—summoned in accordance with By-law 60, on the requisition of Messrs. S. B. Russell, Alfred H. Hart, T. Edwin Cooper, Herbert Wigglesworth, Alfred W. S. Cross, Wm. Flockhart, C. E. Mallows, R. Stephen Ayling, *Fellows*; Thomas A. Pole, H. V. Lanchester, J. E. Newberry, Herbert W. Wills, John Anderson, *Associates*—was duly held on Monday, 3rd July, the President, Mr. John Belcher, A.R.A., in the Chair.

The object of the Meeting was to discuss certain amendments, proposed by the requisitionists, to the Regulations for Architectural Competitions passed at the Meetings of the 1st May and 5th June [Journal, 6 May and 10 June 1905].

The requisitionists proposed that clause 14 should read as follows:—

> "*In all works costing an estimated sum of £25,000 and upwards, three Assessors to be appointed unless there are insurmountable objections. As stated above, the President of the Royal Institute of British Architects is always ready to advise on this or other points.*"

[The clause as previously adopted read:—"In the case of works of considerable magnitude it is desirable that three Assessors should be appointed. As stated above, the President of the Institute is always ready to advise on this or other points."]

The requisitionists further proposed that the clause as to Scale of Charges, which had been struck out at the Meeting of the 1st May, should be reinstated in the following form:—

> "*The usual R.I.B.A. Scale of Charges for assessing Competitions is at the minimum rate of Thirty Guineas plus $\frac{1}{5}$ per cent. upon the estimated cost of the proposed building.*"

The President having read the notice convening the Meeting,

Mr. H. V. Lanchester [*A.*] moved the adoption of clause 14 in the terms as above set out. Referring to his notice at the Meeting of the 5th June to bring forward this motion [Journal, 12 June, p. 517], Mr. Lanchester said that he should not have adopted the course of bringing about this Meeting had he not considered the proposal to be a very important one, and not sufficiently covered by the clause as it at present stood in the Regulations. The question of ensuring the best assessing possible was of such importance, in view of the numbers who went in for competitions, that all other questions of practice were of minor account compared to it. There were no very definite difficulties in the case of works of importance such as suggested—namely, those estimated to cost over £25,000—in having three assessors appointed if it were clearly understood that the cost of assessing would not vary: whether one assessor or three assessors should be employed, the cost would be the same. The two chief objections seemed to be the following. The first was that more work would be demanded from the profession for probably what would be much the same payment. Three assessors would each have to do nearly as much work as the one assessor. He thought, however, that as a profession they ought to be prepared to give that extra work for the benefit of the competitors. The competitors were usually the younger and the assessors the older members of the profession. In other professions—the medical, for instance—the amount of work done by the older members in educational and other matters was very much greater than in the architectural profession. Therefore those of them who happened to be in the position of assessors, ought not to object to give a little more work for a little less pay than at present, in order to secure that the competitors' work should be fairly judged, without the personal factor coming into it, as it so often had done in the past. He did not pretend for a moment that three assessors would be better than the ideal *one*, the best possible assessor that could be got; but there were not enough best possible single assessors to go round, and therefore they had better try and get the best possible jury, as it enabled the President (or whoever had charge of the matter), if he felt that one man was deficient in certain qualities (though in other respects he might be an excellent assessor), to give him the aid of others in whom those qualities were well developed. There was another difficulty upon which stress had been laid—viz. the difficulty with the promoting bodies. There was a prevalent feeling—and he could quite understand it—that promoting bodies thought they could deal very well with one man, but they would be rather afraid of a committee of architects joining their body, as likely to lead to too much discussion. He thought that if the most suitable man, as chairman of the jury, acted as spokesman with the committee if necessary, the promoters would soon see that the Institute were not desiring to swamp their views, but rather were endeavouring to have the competition assessed in the way most thoroughly in the interests of the promoters. It was obvious that the Institute considered a jury to be better than a single assessor because all their own competitions were assessed primarily by juries; and if this was the most satisfactory way of assessing their students' competitions, which were very similar to outside architectural competitions, he did not see how there could possibly be any objection to the jury system as applied to competitions for actual buildings. As regards the loss to the profession, that ought not to be taken into account in view of the benefit to accrue to the profession in getting a thoroughly reliable assessment, especially in cases where technicalities are required, and where at the same time it is desirable to get a building both sound and architecturally interesting. He felt sure that it would be entirely in the interest of the profession and of promoters to adopt such a regulation as the one proposed.

Mr. Herbert W. Wills [*A.*], in seconding the resolution, said that his greatest complaint with assessing, as done at present, was that it was too much of a lottery. At present many assessors seemed to think that, once they had the settlement of a competition in their hands, the conditions could go on one side, and the only thing that remained was to select a design which the individual assessor liked. He regarded however, as the very essence of satisfactory assessing, a strict and rigid adherence to the conditions. He quite agreed that in many cases there were too many conditions. The wisest course was to have the fewest conditions possible. One could not tell, until one designed a building, what would be the conditions best calculated to produce a first-rate result; and very often an assessor, who might not have been consulted about the conditions beforehand, or might have agreed to them beforehand, after some slight thought would see that the conditions he had to adjudicate under prevented his putting before the Committee what he felt to be the scheme for the best building possible. But, in fairness to competitors, the first thing that they ought to be able to calculate upon was a rigid observance of the conditions as to site, and a rigid observance of the conditions as to cost. Any one looking over the competition results would be astonished to find what a number of competitions took place in which these matters were taken no account of. His belief was that, if the jury system were adopted, while one man might feel such overmastering sympathy with a certain design as to lead him to disregard certain conditions, one of his two colleagues would point out that the design could not be accepted because it materially militated against the conditions that had been laid down, either by themselves or by the promoters. If that result were attained, hardly any sacrifice would be too great, and they would not hear one-fourth the present dissatisfaction with competition results. He knew it was the opinion of many people competent to judge that in certain cases the jury system was not the best method of obtaining a first-rate result; but the phrase introduced in Mr. Lanchester's motion would undoubtedly prevent in a great many cases the jury system being adopted. If this resolution were passed the jury system, he thought, would only be adopted in a small number of cases at first; but if it was found to be successful, and one was able to instance to promoters the satisfactory results obtained by the jury system, they would have a lessening objection to it, and the system would come into more general operation. If on the other hand it did not produce a good result, and did not do away with the grievances competitors had to complain of, they would at any rate be able to hold a special meeting and have the regulation rescinded. The jury system was the custom, not the exception, in France and in America; and under the present circumstances, in view of the long record they could point to of unsatisfactory awards, there was every reason for giving it a trial in this country.

Mr. J. S. Gibson [*F.*], Chairman of the Competitions Committee, said that when the subject was under discussion, as it had been for a considerable time, in the Competitions Committee, it was felt by practically all the members of that Committee that it would be very desirable, if it were possible, to introduce a system of a jury of assessors; and the Committee worked very hard towards that end. The difficulty seemed to be to frame suggestions which would introduce such a jury, and at the same time not to do anything that would frighten the promoters of competitions. It had taken a considerable number of years to make the promoters of competitions acquainted with the fact that even assessors were necessary in competitions, and he thought the Institute, so far as it could within its powers, had done everything that it could to gain the confidence of promoters, at any rate in the more important competitions carried to a successful issue in this country, so that the conditions would be fairly satisfactory to the architects taking part in them; and it would be an unwise thing to do anything which the promoters might think would either increase the expenditure of carrying out their schemes, or place difficulties in the way of carrying on the competitive work. And with these various interests all before them, the Committee came to the conclusion that the placing of a money value upon the competitions which would be assessed by a jury, and those which would be left to the single assessor, was an exceedingly difficult problem. It was felt that there were many competitions which probably would not amount to a great deal in money value, but were of such a technical character as to make it desirable that a system of jury assessors should be adopted. And so, amongst all that multitude of wisdom and counsel, they drafted the clause as it was originally put before the Institute. He was not at one with Mr. Lanchester in thinking that the two clauses under discussion were separable. He thought that they hung together because it was evident that it must be made quite clear to the promoting bodies that if the jury system of assessing was adopted it would not run them into a greater expenditure of money; and therefore the two clauses ought to go together in that sense. But assuming a building was going to cost £50,000, and was put up to open competition, it should be made evident to the promoters, when they were seriously considering this, that the cost of assessing this competition, whether by a single assessor or by a jury, would be to them practically the same. That, he thought, was made clear by the clause that was inserted in the original draft put before the Institute: that a scale of charges called the Institute Scale of Charges should be set out, which should, so far as possible, meet with the general requirements of ordinary competitive work. And in that sense he would like all members to keep them both in mind. Because if they set a money value upon their buildings, irrespective of any technical character they might possess, which must of necessity be assessed by a jury, then the other clause must go with it; that it must be made absolutely clear to the promoters that the employment of that jury was according to a fixed scale. The strongest argument, he thought, for the employment of a jury of assessors was to be deduced from the fact that this desire to have a jury came from within their own ranks. It had been felt by a great many competing architects that, however greatly improved the conditions of competition were now to what they were some years ago, the chances of alighting on what Mr. Lanchester had called the best possible single assessor were so remote that it became a question whether a man would enter into a competition. Certainly the majority of well-known competitors would not enter into a competition, as a rule, until they knew that the competition was to be properly assessed, and, usually, until they knew who the assessor was to be. Because there was on their part a large amount of energy and skill expended which would be entirely thrown away if it happened that an assessor was appointed in whom they did not place that confidence which was necessary for them to do their best work; and it was impossible for them to produce their best work unless they were having every confidence in the judge before whom it was to be placed. He himself thought that in these days, when so many buildings were being erected which demanded skill in different directions, buildings for special purposes, and buildings requiring skill of a technical kind, on the whole the jury system, if introduced, would probably tend to the erection of buildings at least as good as those which had been erected within recent times of a technical character, and in which at any rate the claims of architecture as an art might at least find a more fitting expression. He thought that these buildings would be greatly improved by having a jury of three to assess them, and that we should have structures of which we might be a little more proud, and which would generally fulfil all the requirements of sanitary science or technical necessities.

Mr. G. A. T. Middleton [*A.*] said he had listened with considerable interest to the previous speakers, but, so far as he could understand, everything they had said was as equally applicable to the clause as it stood, as it was to the amended clause which they proposed. The clause as it stood formulated distinctly that there should be in competitions for works of considerable magnitude a jury of three assessors. Nothing had been said that would lead them to place a limit of £25,000 upon them. On the contrary everything had been the other way. It had been said that we should not frighten promoters. He thought if we were to place a definite sum like this £25,000 as a limit we should very likely frighten promoters. If it stood as at the present time "works of considerable magnitude," it rested with the President to suggest when necessary, when he considered that a work was of sufficient magnitude, that there should be a jury. That would not be frightening promoters at all; but he was afraid that the amendment would be very likely indeed to do so. That was the only point of difference between the one and the other: whether they should leave it to the President to suggest when it was necessary, or whether they should lay down a hard and fast line of £25,000. He for one was inclined to leave it in the hands of the President.

Mr. W. Gilmour Wilson [*F.*] suggested that if a jury with regard to works of £25,000 was a proper system, it was also a proper one with regard to works of £5,000. In a limited competition for an important building where, say, six or ten architects were asked to compete, the work of assessment would be comparatively easy; but in an open competition, which seemed to be the rule to-day, where there might be from 100 to 150 designs sent in, for a building costing much less than £25,000, it was altogether too onerous for one man; and he should be pleased to see the reference to works of considerable magnitude left out altogether; that the jury system as a principle should be adopted in all open competitions, and there might be a limit, if need be, in the case of limited competitions, say £25,000. There was a crying demand for some such movement as this, and it seemed to him that the question of frightening public bodies was altogether a bugbear. It would be a very simple matter for the President, when approached by any promoting body, to say that he suggested the name of a certain architect as assessor, and of two others as his advisers. The question of cost could very easily be got over, because, as Mr. Lanchester said, in all other professions members gave their services free; and the question of assessors making money out of outsiders never came into consideration at all. He thought that the older members, and those who were likely to be appointed assessors on competitions, were men who might very well waive altogether the question of profit for the benefit of the younger members of the profession who were coming along to take their place.

The Secretary, in reply to Mr. Lanchester, stated that the original clause as it came from the Competitions Committee through the Council to the General Meeting, read: "Except in the case of works of inconsiderable magnitude, it is desirable that two or more assessors," &c. There the matter was put in the negative form. The General Meeting put it in the positive.

Mr. Lanchester: That would convey a very different impression—the impression, indeed, that one would like to convey. I do not think we should have asked to have brought this motion forward if the clause had stood in its original form.

Mr. Edwin T. Hall [*F.*] said he could not help thinking that the whole question was involved in what Mr. Wills had said—viz., that the assessor should adhere to the conditions under which architects were asked to compete; that if he did so there would be very few of the complaints that were heard at present. It should be laid down as a law that the assessors should only give a decision on the basis of the conditions under which the competition had been made. He could not help thinking that there was too much of a feeling among assessors that their duty was to try and get the best building for their clients irrespective of conditions. That was not their business at all. Their business was to decide amongst those who had competed, and amongst those only who had complied with the conditions under which the competition had been made. In a competition he himself had recently to decide, one competitor, finding that the site was so evidently difficult, had adopted an adjacent field which was flat, and had actually sent in his design to fit that field rather than the site laid down in the conditions! If every assessor were simply to say to himself, "I have not to say which is the best design, but which is the best design under the conditions of the competition," they would have no complaints whatever. Promotors if asked to have three assessors in many cases would decline to have any at all. They had had a great deal of difficulty in getting promoters to adopt assessors nominated by the Institute. They had, however, succeeded at last, and the Institute had the respect of the promoting bodies all over the kingdom. But if promoters thought that architects themselves were dissatisfied with that system, he thought they would very likely decline to have any assessors. And was there not also another danger to fear? Take a provincial competition. If they laid down that there must be three assessors, was there not a grave danger of the promoting body saying that they would appoint two and the President of the Institute should appoint the other? Where would the architects be then? The President's nominee might be outvoted by the other two, and the competitors would find themselves in a worse state than they were in now. But assuming the case that Mr. Wills had drawn attention to; if the conditions were ignored, would they be any better off with three assessors than with one? The whole essence of the thing was to get the conditions adhered to. There had been a recent competition with 187 sets of drawings put in. Supposing there had been three assessors, was it not quite possible that, in practice, each man would have taken a third of those drawings? He would select the one he thought best; and then would come the question: How were they to decide? They had each selected a design as the best; they were tenacious of their opinion; what was going to happen? It was assumed that one man would give up his opinion, or that two men would give up theirs. That would mean that the most masterful assessor would carry the point. He (Mr. Hall) was quite as much interested as anyone in seeing justice done in these competitions; but the way in which this was to be attained was a question of expediency. If they let the public think they were distrustful of their own one assessor, he was very much afraid the public would be distrustful of three, and that they would not have any. Then it was said that assessors should not consider the question of fees at all. He did not think, however, that architects should be reproached with the amount of unselfish honorary work they did. In the work of the Institute alone he thought that young members could hardly be aware of the immense amount of time given by the senior members of the Institute, not only in the work of the Council, but in the work of the numerous committees. There were a very large number of members who gave hundreds of hours a year in an honorary way. Were they to give their services, not merely for the benefit of the competitors, but for the benefit of the public also—for the benefit of the promoters? Why should they? Did the engineers do it? An engineer was called in to advise, and he charged an immense fee—fees that architects hardly ever saw or heard of—and he was respected for it. He charged a fee, and the fee was given as the value for his services. Take the case of 187 designs for a £20,000 competition; by this scale the fee would come to 60 guineas; that is to say, three assessors were to charge 20 guineas each for studying (because it must be assumed that they did their duty) 187 designs. For whose benefit? To give the promoters the best thing under their conditions. Why should they give their services to the promoters for nothing? They should give their services for the benefit of architects he admitted; but they did that in another way, and one could not expect busy men to devote many hundreds of hours a year for nothing. He did not wish to boast, but he personally gave a great deal of his time to honorary work, and was only too delighted to do it; but here was a case of giving one's professional knowledge for the benefit of promoters, and for nothing more or less. In conclusion, he thought the rule as originally proposed by the Competitions Committee was very much better. There were exceptional cases when a jury might be desirable; that should be in the discretion of the President. He would exercise it—because they had the honour always of having an able President in the Chair—he would exercise his discretion with due regard to the interests of the profession and to justice. But his impression was that they would not have any of these questions raised, if it was laid down as a fixed condition, when an assessor was appointed, that he should before all things have regard to the conditions under which the competition was set. That was the beginning of his speech, and that was the end of it: compliance with the conditions should be the essential quality on which any judgment should be given.

Mr. H. Hardwicke Langston [*A.*] asked how Mr. Hall would suggest that that rigid rule should be observed by assessors? If the profession felt that they were being justly dealt by, and that in the wisdom of the assessors the award would not be given to a competitor unless he had kept rigidly to the conditions of the competition, there would probably have been no need for the present discussion. But they had not this confidence, therefore some reform was called for.

Mr. Hall said he thought that question might be got over by an expression of opinion from the Institute, or a direction from the Council in the appointment of any assessor, that he must rigidly adhere—he was not speaking of trivialities, of course, but in broad things—to the conditions of the competition. That should be an instruction to every assessor.

Mr. A. Saxon Snell [*F.*] said he had listened with every desire to be sympathetic to those who had brought forward this resolution, but he agreed with Mr. Middleton that they had not, so far as he had heard yet, made out a case. He did not see why there should be a limit of money. There were plenty of buildings of £10,000 more difficult to assess and of greater importance than one of £100,000. It was not a question of money at all. It must be left, he thought, to the judgment of the President as to when a competition required three assessors and when only one; and he, no doubt, would not judge of it simply on the question of price. After all, as Mr. Hall and others had pointed out, the most important thing was that the conditions should be observed. It should be a direction to every assessor that he should, in the first place, make as few conditions as possible; and, secondly, that he should rigidly adhere to them.

Mr. R. Stark Wilkinson [*A.*] said he thought the point had not been quite sufficiently put before them; that, after all, supposing there was a jury of three, finally it would become a single assessor—the majority of one would still carry the day. He also thought that, when so many of them entered competitions themselves, it was scarcely fair that they should cry shame on those single assessors for not having done their duty. He had competed in at least two of the later competitions unsuccessfully; but, because he had been unsuccessful, he could not say for a moment that he did not agree with the award that had been made by those single assessors. He agreed with Mr. Hall that it would be quite sufficient to allow the President for the time being of the Institute to exercise his judgment as to whether it was necessary to have a jury; bearing in mind all the time that a jury of three was practically no more than a single assessor.

The President said that, as President, in appointing an assessor, if the assessor did not comply with the conditions he should certainly never appoint him again. With regard to the whole question, it seemed to him more or less experimental, as there might be grave difficulties. He thought that was the view of the Competitions Committee in drafting their clause rather free and open, leaving it to the discretion of the President to suggest three assessors when some suitable occasion arose. He could understand that occasions might arise when a jury would be admissible. He quite admitted that, but, at the same time, he saw grave risks in laying it down as a rule that three assessors should be appointed. The chances were that they would get in a competition a result they had not foreseen, for it was not stated that the assessors were all to be architects. In the case of a hospital it might be that they would get two doctors and one architect; and those who had had anything to do with doctors would know pretty well what the difficulty would be in assessing with two doctors. Again, in the case of Corporation work, the town clerk, perhaps, and the borough surveyor might be appointed; and the President of the Institute would be asked to appoint the third (as there must be three), an architect. Many difficulties of that sort might arise. He thought that if it were left open and free, and the President were given a proper amount of freedom, they would get all they required. The jury system would be more or less experimental. If when they had tried this jury system they found it to answer satisfactorily, they could lay it down a little more firmly perhaps; but at the present time he thought it hardly wise to do so. He had had a little experience of juries, and had found the system extremely difficult. Those who had taken part in awarding prizes to the students also would bear him out that it was extremely difficult with three assessors to arrive at a fair conclusion.

The President having read the motion and put it to the Meeting, it was voted upon by show of hands and declared lost.

Mr. Hall said that, if he were in order, he would propose that it be an Instruction to each assessor that in coming to his award he should decide only on the Conditions on which the Competition was invited. He would move that as an Instruction to be given to assessors in future, and to be incorporated in the Competition Papers.

Mr. Lanchester seconded the Resolution, and Mr. A. W. S. Cross, M.A. [*F.*], in supporting it, said that such instructions were issued to assessors some years ago.

Mr. Hall suggested that when the President had nominated an assessor, and that assessor was appointed, then the President, or the official of the Institute acting for the President, should write to the assessor and say that the President in making the appointment had made it, so far as the assessor was concerned, on the condition that he in adjudicating should adhere primarily to the conditions under which the competition was invited.

Mr. John W. Simpson: That matter might very well be put in the Paper of Instructions to Assessors which is now issued to assessors.

Mr. Lanchester: I think it might be possible even to go a little further, and add to the clause that the assessor's award shall be finally binding, unless it can be clearly proved that he has not paid attention to the conditions of the competition in assessing.

Mr. Hall: The danger is that we should be challenging the assessor before the public, and that would be very imprudent. Some special attention should be given to the matter in the Instructions.

The President: That can be done.

The President then called for the next resolution—viz. "That the clause as to Scale of Charges for assessing Competitions in the original draft be reinstated in the following form: *The usual R.I.B.A. Scale of Charges for assessing Competitions is at the minimum rate of Thirty Guineas plus $\frac{1}{5}$ per cent. upon the estimated cost of the proposed building.*"

Mr. Lanchester said that this was the clause that had been put forward by the Competitions Committee, but it had been struck out by the General Meeting of the 1st May [Journal, 6th May, p. 452]. Some of them felt very strongly, however, that this clause as to the scale of charges would be a desirable thing to have, and they had taken the present opportunity to endeavour to get it restored. A chief point in its favour seemed to be that it would avoid the possibility of underbidding for assessorships, and would discourage promoters going from one to another to see how they could get the work done most cheaply. This had occurred very frequently. Promoters had abandoned the assessors recommended by the Institute, and taken others who had offered to do the work at a lower rate. This had been much to the detriment of the competitors, as the assessors were distinctly inferior men to those who would otherwise have been appointed. Therefore a scale of charges, like the ordinary scale of charges, binding on all members of their body would be an advantage to competitors, and an advantage to promoting bodies also. There would be something definite to go upon; there would be no need to enter into discussion with their clients in this matter of assessors as to what the charges would be; it would all go as a matter of routine. It was said that in exceptional cases these charges might work rather hardly. Certainly in ordinary cases, for buildings up to £100,000 or £150,000, they would be just and reasonable. But for works of very great magnitude the inclusion of the word "usual," which had been inserted in the clause since it was last before the Institute, would leave a loophole for the parties to make a special bargain if the charges for assessing were thought to be excessive. The objection that the amount of work would vary very greatly hardly seemed to him to have the force which had been given to it; the same objection applied to the scale of charges for their ordinary professional work. Very often they had to put in four times the work in one case that they did in another for the same remuneration. That scale, however, had been tried for a long time, and adopted and retained; and why should a criticism which applied equally to that be considered fatal in this case? The amount of work would vary, but very often not so much as at first sight appeared. Mr. Hall had just quoted a case of 187 designs; but Mr. Hall had probably reduced those designs to, say, twenty in a couple of hours. If that had been a limited competition with twenty designs he would have had two hours' less work. So there was not so much difference between twenty designs and 180 designs as at first sight appeared. Another objection was that the scale of charges might be frequently beyond what the promoters thought fair to be paid; but, taking the average, it would be found that sometimes more had been paid and sometimes less. The scale of charges suggested approximated pretty well to the average that assessors had hitherto received; and, moreover, it had the merit of being very easily calculated. It certainly would be an advantage having the matter fixed. They all knew the advantage of not having to go into these matters with clients as regards the five per cent. in the usual charges; much friction was saved and awkward discussion avoided. To be able to apply that same system to assessorships of competitions was an advantage which quite outweighed the disadvantages of having to do sometimes a little more work and sometimes a little less for the same money. And, as he had already pointed out, the competitors would materially gain by there being no doubt as to the assessors originally appointed being employed, instead of inferior men who would take less money.

Mr. A. W. S. Cross [*F.*] seconded the resolution.

Mr. R. Stark Wilkinson [*A.*] said he understood Mr. Lanchester in his previous speech to say that it would be quite sufficient if the fee proposed were "divided amongst three assessors." Now he seemed to be fighting for the whole fee for one assessor. He thought they ought to be very chary of frightening promoters. He personally should like to see a scale set down for assessors, but it ought to undergo a little more discussion by the Committee, and be thrashed out in the same way as the Institute scale of charges for ordinary work had been.

Mr. A. Saxon Snell [*F.*] said he could not let one remark of Mr. Lanchester's pass without a very strong protest. He (Mr. Snell) believed it was a fact that some assessors would put aside 75 per cent. of the drawings within half an hour; but he wished to say most strongly that that was most unjust to the competitors. Personally, when acting as assessor, he felt it his duty to go through all the drawings three times, and in doing this he always found his first judgment not confirmed. He had more than once found that he had placed the winner only in the last examination

Mr. Edwin T. Hall said he could not help thinking that it would be very imprudent to adopt this resolution for the very reason that Mr. Lanchester had given. Mr. Lanchester said that at present they suffered from the fact that a man was nominated as assessor and asked a certain fee, and some one else was appointed who would take a less fee. There was a system of contracting among engineers which arose in this way: an engineer made an estimate and the contractors stated within what percentage, higher or lower, they would carry out the contract; they tendered on the engineer's estimate to do it for so much per cent. less or more. He could not help thinking that if they had this scale, the cheap man would write to the promoters that he would do the work for 10 per cent. less; and the difficulty Mr. Lanchester had suggested would arise because the cheap man would know what the fee was going to be. That, he thought, cut the ground from under the proposers' feet. It would create a much greater evil than it would remedy. There had been many competitions within the last few years of £300,000 to £400,000; for instance, the Manchester Royal Infirmary, King's College Hospital, the Bexhill Asylum—all large works. On the scale suggested the fee on those jobs would come to £830. But he did not suppose the assessors received more than £250. Supposing the promoters were asked to appoint an assessor, and told that they would have to pay him £830, would not they be very likely to refuse to have an assessor at all? Therefore they were creating a grave difficulty in putting forward this scale. They would never get an assessor at all perhaps in big important competitions where he was wanted more almost than in little ones. And when it came to a little one, what would they gain by such a scale? Take the case of a £20,000 job; the fee would be £70. He did not suppose that any assessor charged more than £70 for an ordinary £20,000 competition. They were putting forward a minimum scale to suit a little competition, with the probable result that on a big competition they would not get an assessor appointed at all. It was much better to leave it as it was at present.

Mr. H. W. Wills [*A.*] said he thought Mr. Hall's objection was met by the word "usual" in this resolution. Little buildings of the size he had mentioned would hardly be called usual, and it would be perfectly open in those cases to suggest another and a smaller fee. He remembered the case of a gentleman proposed as assessor, whom he might call in pictorial language an "angel of light"; but this "angel of light" asked what was regarded as an unnecessarily high fee. Consequently some one else who might be described in very opposite terms was appointed assessor. That was a distinct misfortune to the competitors. Were this resolution adopted there would be no reason to approach the inferior man, because the promoters would not save anything by so doing. For that reason, and because he thought it was perfectly easy to arrive at a reasonable scale which fitted most cases, except those which were unusual, and which could be dealt with under this resolution separately, he heartily supported Mr. Lanchester's proposition.

Mr. H. Hardwicke Langston [*A.*] said he found himself in perfect harmony with what Mr. Hall had said, and he should vote against the resolution.

Mr. G. A. T. Middleton [*A.*] said it had been mentioned that in their ordinary work they received 5 per cent. sometimes for less work and sometimes for much more, and that that was a reason why the same thing should be done by assessors. He could not agree with the adoption of a scale of charges based on the amount of the cost of a building for such a thing as assessing. The work depended very largely upon the number of drawings sent in. It would be very much better to have the scale based on a definite sum as the minimum, and so much more per set of drawings sent in above a certain number in the case of open competitions. That, of course, was quite open to anyone under the present rule, and he thought that rule was the best. Again, supposing this scale were adopted, did it bind everybody? It might bind a certain number of assessors; it could not bind others; and promoting bodies could go outside the Institute and find plenty of other assessors willing to take the work at a much lower rate—and very much to the harm of architecture. Provided there were a professional assessor of some sort, architects would be found to enter. Passing from large competitions to small ones, he had known competitions in a small country district for, say, a set of almshouses, costing, perhaps, £1,200. In such a case this 30 guineas for the assessor would be entirely outside the mark; it would be a great deal too much—much more than promoters would be inclined to spend. It was too high for a very small competition, and it was too high, as Mr. Hall had said, in very large cases, though possibly in the ordinary run it would be sufficient. Certainly it seemed to him best that each case should be judged upon its own merits. An assessor should be allowed to charge what he thought fair payment for his own services under the particular circumstances of each individual case, and matters should therefore remain as they are.

Mr. Leonard Stokes [*F.*] said there was a point that seemed to have been overlooked which frequently came into these cases. If a man had to go to Scotland to assess a competition, it was rather different from being in the next street, and that might have some effect on the fee he would charge.

Mr. Lanchester: The object of inserting the clause was not to protect assessors, but to protect competitors.

Mr. J. S. Gibson [*F.*] said the clause had received a considerable amount of consideration before it was presented to the meeting, and it was put forward by the Competitions Committee in the hope that it would be approved by the general body and placed in the regulations governing competitions. The Competitions Committee in framing this regulation had two purposes in view: the first purpose was to make it evident to promoters of competitions that the cost of assessing competitions would be to them practically the same whether they were assessed by a jury or by a single assessor, and therefore the clause was worded "The usual scale for assessing competitions," &c. That got rid of the supposed ambiguity of charges for assessing a competition, no matter by whom assessed, whether by one or more. In reply to Mr. Leonard Stokes the question of travelling expenses never came into this question at all; those were treated, as they always were treated, as over and above any fixed charge. In his experience, at any rate, he had never found a case in which promoters desired to include travelling charges in any charge of this kind.

Mr. Leonard Stokes: It is the time.

Mr. Gibson: The time, of course, was a serious factor. The aim of the Committee was to discourage, so far as they possibly could, competitions for buildings of such small amounts as were referred to by Mr. Middleton.

Mr. Middleton: This is for all competitions, limited or unlimited.

Mr. Gibson: The regulation was drawn up with the view that it would apply to practically the large majority, probably 90 per cent., of all the usual competitions, and they were perfectly well aware of the values of these. When they came to extremely small buildings, or extremely large ones, those were outside the range of what might be termed the usual run of competitions, and could be treated by some arrangement between the assessor and the promoting body to meet both parties' views. The word "minimum" in the clause had crept in through some error, and should be omitted. He felt very strongly that the Institute as a body should set some value upon the work which had to be done in assessing competitions, and that it should not be a matter of bargaining between the assessors and the promoters. There should be a scale to which they could refer, and which would be applicable in nearly every instance. The scale proposed had been very carefully worked out, and it would in the vast majority of cases be a fair charge for promoters to pay, and a fair charge for the assessors to receive for the work they were prepared to do. He felt strongly that promoters should be encouraged to come to the Institute, as they had done in great numbers in the last few years, and nothing in these regulations, which were issued broadcast throughout the country, should be printed which would tend to discourage architects and those who were so anxious to introduce the jury system, in the discretion of the President for the time being of the Institute. They should also make it evident to the promoters that the cost of carrying through their competitions in practice would be the same whether the assessing was done by one or more persons.

Mr. G. H. Fellowes Prynne [*F.*] thought it unwise to fix a definite scale in the way proposed. The assessing of each competition should be charged for on its merits. With a large number of plans for a building of moderate cost a 30-guinea fee would be altogether inadequate. Sometimes it would take five or six days to get through the plans fairly, and to fix the minimum sum proposed would be a great mistake. The matter had better be left as it was.

After some discussion on the wording of the clause Mr. Lanchester withdrew the word "minimum," and a proposal of Mr. John W. Simpson [*F.*] to substitute the words "the sum of" for "at the rate of" was agreed to. The clause so amended was then put to the meeting and carried as follows:—"That the usual R.I.B.A. scale of charges for assessing competitions is the sum of 30 guineas *plus* one-fifth per cent. upon the estimated cost of the proposed building."

Finally a motion by the President, that the Paper as revised be printed and issued as an Institute document, was put from the Chair and carried.

The President's "At Home."

The President's second "At Home"—the concluding function of the Session 1904–05—was held in the rooms of the Institute on Friday, 7th July, and some two hundred and fifty members and other guests availed themselves of the President's hospitality. A special feature of the occasion was an exhibition of the painter's art as applied to the decoration of interiors: various designs, sketches, models, and working cartoons being kindly lent by Messrs. Brangwyn, A.R.A., James Clark, R.I., Clayton and Bell, J. D. Crace, Professor Gerald Moira, G. Murray, and T. R. Spence. The following is a list of the exhibits:

Mr. F. Brangwyn, A.R.A.—

- Sketch for one of a set of panels, forming part of the decoration of the English room at the Venice International Exhibition.
- Sketch for one of a set of large panels for the Skinners' Hall, London.
- Sketch for a panel, "The Departure of Columbus," to be placed in the house of Mr. Collier, New York.

Mr. James Clark, R.I.—

- An oil study in monochrome for a wall-painting in the waiting-hall of the Hake Memorial Medical Mission, Liverpool. Subject: Christ Healing the Sick.
- Cartoon in charcoal, part of a Stained Glass Window design for Kirkby Stephen Parish Church.

Messrs. Clayton and Bell—

- Full-size working cartoon for one of the groups—The Holy Women journeying to the Sepulchre—executed in Venetian mosaic for the apsidal semi-dome of the Guards' Chapel, Wellington Barracks.
- Design for one of the four lunettes connected with the Dome of the Saloon of the White Star ss. *Oceanic*, for Mr. Norman Shaw, R.A.
- Design for a Decorative Panel illustrating Labour as connected with Railway Engineering.

Mr. J. D. Crace [*H.A.*]—

Water-colour Drawings.

- Colour decoration of the Entrance Staircase, National Gallery.
- Coloured restoration of a ceiling in Carrington House (now destroyed).
- A portion of the decoration of the ceiling of the Long Gallery, Longleat, as executed.
- Alternative design for a small ceiling at Longleat.
- Suggested colouring for the covered Court of the Royal Exchange.

Professor Gerald Moira—

- Designs for two lunettes. Decorations for P. and O. steamship *Mooltoon*. 1. Malvolio; 2. Queen Elizabeth receiving Sir Francis Drake.
- Design for lunette. Decoration of Library.
- Three designs for decoration of a music-room.
- Photograph of ceiling-decoration for Library of Unitarian Church, Liverpool.
- Chalk study of head in decoration of Lloyd's Register.
- Painting: Hercules rescuing Demetria.

Mr. George Murray—

- Three wall panels and one ceiling panel for the Board Room of the Royal London Friendly Society (Mr. John Belcher, A.R.A., architect).
- Two lunettes for the Board Room of the Norwich Union Life Office (Mr. George J. Skipper, architect).
- Model of semi-dome, dining-room, Sennowe Hall (Mr. George J. Skipper, architect).
- Study of the Burial of Count Orgaz by Greco, Toledo.

Mr. T. R. Spence—

- Working cartoons for mosaic executed at St. Paul's School, West Kensington—Erasmus' "Joseph and Mary" (being section of group of "Christ in the Temple"). 1-inch scale drawing of organ screen (St. Paul's).
- 1-inch scale drawing of decoration of Chancel of Fitzchurch, near Shrewsbury, with full size of one cartouche on east wall: for Sir Aston Webb.
- Two decorative pictures "Spring's Harbingers" and "May."
- Design for heraldic window executed for Lord Hatherton, Teddiesby Hall, Staffs.
- Design for a house in Dover Street, Piccadilly.
- Photographs: "A Princess," from the picture in the possession of H. Eslington, Esq.; "Waiting for the Triumph," from a picture in the possession of Sir John T. Brunner, Bart., M.P.
- Photographs of picture "Dionysians in Argolis" and "Telemachus at the House of Menalaos."

Illicit Commissions.

A member of the Institute has sent the Secretary a letter from a firm of manufacturers in which they offer him 5 per cent. on glazing work which he may put into their hands. As the letter is marked "personal," we regret not being able to print it. If all architects refused to have anything further to do with firms making them such propositions, manufacturers might realise how much more to their interests are straightforward courses. Members of the Institute have to sign a declaration to the effect that they will not accept any trade or other discounts or surreptitious commissions or allowances in connection with any works the execution of which they may be engaged to superintend, and the principle is observed by every architect of ordinary honesty.

Council Appointments to Standing Committees.

The following appointments to the Standing Committees of the Institute have been made by the Council under By-law 46:—

Art Committee.—Sir L. Alma-Tadema, R.A. [*H.F.*], Messrs. T. Raffles Davison [*H.A.*], George Frampton, R.A. [*H.A.*], William Flockhart [*F.*], and George Sherrin [*F.*].

Literature Committee.—Messrs. Francis Bond, M.A. [*H.A.*], Colonel Lenox Prendergast [*H.A.*], Hubert Christian Corlette [*F.*], Henri Favarger, F.S.A. [*F.*], and Robert Falconer Macdonald [*F.*].

Practice Committee.—Messrs. Thomas Batterbury [*F.*], Ernest Flint [*F.*], A. H. Kersey [*F.*], Sydney Perks [*F.*], and Edward Greenop [*A.*].

Science Committee.—Messrs. F. N. Jackson [*H.A.*], F. T. Reade [*H.A.*], A. T. Walmisley [*H.A.*], Arthur Crow [*F.*], and Arthur John Gale [*A.*].

Supplement to Lightning Research Committee's Report.

Under the title "Modern Lightning Conductors," Mr. Killingworth Hedges, Hon. Secretary of the Lightning Research Committee, has produced an Illustrated Supplement * to the Report of the Committee published in this JOURNAL on the 6th May last. Details, illustrated by photographs and pen-and-ink sketches, are given of numerous cases of protected and unprotected buildings struck and damaged which furnished material for the Committee's investigations. Mr. Hedges among other chapters has one dealing with the characteristics of a flash of lightning, and quotes Sir Oliver Lodge to show that reliance can no longer be placed on the area of protection that used to be claimed for lightning-rods. Considerations of cost and the insurance question are gone into, and Specifications in Detail given of systems of protection recommended for various kinds of buildings: for instance, Specifications for a Modified Cage Protection—copper and iron cable; for the protection of a church—copper conductors; iron conductors; protection for farm buildings and for explosives magazines. The Report of the Lightning Research Committee is included in the book.

International Building Congress at Liège.

The attention of members has already been drawn in the JOURNAL [p. 520] to the International Building Congress which will take place from the 14th to the 20th September next at the Universal Exhibition of Liège. This, the first International Congress to be devoted entirely to the building industry, is under the patronage of the Belgian Government, and has as its Hon. Presidents the Belgian Ministers Messrs. the Comte de Smet de Naeyer and Francotte. The President of the Institute, Mr. John Belcher, A.R.A., who is on the General Committee of the Congress, is in receipt of a letter from the President of the Organising Committee expressing the hope that members of the Institute will muster largely at the Congress, and assuring them of a very cordial welcome. A few programmes of the Congress are available to members at the Institute, and will be forwarded on application.

Farewell Banquet to Sir Caspar Purdon Clarke [*F.*].

Sir John Gorst, M.P., presided at a farewell banquet given in the Criterion Restaurant on the 28th ult. to Sir Caspar Purdon Clarke, C.I.E. [*F.*], who is now leaving England to take up his new post as Director of the New York Metropolitan Museum in succession to General di Cesnola. More than forty years ago Sir Caspar entered the National Art Training Schools at South Kensington, where he won the National Medal for architectural design. In 1870 he went to Italy as superintendent of mosaic reproduction in Rome and Venice, and in 1872 he completed the decorative work at the Church of St. Mark, Alexandria, for the late James Wild. In 1874 he went to Persia to complete the British Embassy buildings in Teheran; and four years afterwards was appointed architect to the Royal Commission and agent to the Indian Government for the Paris Exhibition. In 1880, having rearranged the Indian collections at South Kensington, he visited India. On his return to England he was made a Companion of the Order of the Indian Empire and Keeper of the Indian Section at South Kensington. He was elected Fellow of the Institute in 1888. In 1892 he was appointed Chief Keeper, and in 1896 Art Director of South Kensington Museum. He was knighted in 1902, and was appointed Royal Commissioner for the Paris Exhibition, 1900, and the St. Louis Exhibition, 1904. A large silver cup, suitably inscribed, was presented to Sir Caspar at the farewell banquet.

The late Charles Forster Hayward, F.S.A. [*F.*].

Mr. Charles Forster Hayward, who served the office of Hon. Secretary of the Institute over forty years ago, died at his residence, the Guest Hall, Lingfield, Surrey, on the 5th inst., in his seventy-fifth year. Elected Associate of the Institute in 1855, he proceeded to the Fellowship in 1855, acted as Hon. Secretary jointly with Mr. J. P. Seddon during the five years 1862 to 1866, and subsequently served for some years on the Council. Until the last few years he was regular in his attendance at the Institute meetings and a frequent speaker in the debates. He contributed the following Papers to the TRANSACTIONS: "Architecture of the pre-Gothic Age in Germany, or the Romanesque Development of the Rhine and Central Europe" [TRANSACTIONS 1854–55]; "Remarks on Dwellings of the Poor" [TRANSACTIONS 1875-76]; "The late Mr. Joseph James" [TRANSACTIONS 1874–75].

We are indebted to *The Builder* of last week for the following notes of Mr. Hayward's professional career. Having studied in the Royal Academy schools, he became an assistant of P. & P. C. Hardwick, and then began to practise at 8 Adam Street, Adelphi, in association with the late Professor T. Roger Smith, who had been his colleague, with Sir A. Blomfield, C. Eastlake, and S. J. Nicholl, in the Hardwicks' offices. In 1871 Mr. Hayward succeeded the late Charles Fowler as District Surveyor for St. George, Bloomsbury, and St. Giles-in-the-Fields combined parishes; a rearrangement of the district areas having been effected ten years ago, he was appointed District Surveyor for St. Giles-in-the-Fields, St. George, Bloomsbury, St. Martin-in-the-Fields, St. Anne,

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* Royal 8vo. 124 pp. 74 illustrations. 6*s.* 6*d.* net. Crosby Lockwood & Son.

Soho, and St. Paul, Covent Garden, parishes with, for a limited period, certain adjoining portions of other parishes, and he filled that office until his death. The following among his principal architectural works have been illustrated in *The Builder*: The Duke of Cornwall Hotel, Plymouth, for the Plymouth Hotel Company; St. Andrew's Church, Malden Road, Haverstock Hill, N.W., after the Gothic style; "Oaklands," at Halstead, Essex; the Public Hall, Harrow; for Harrow School: the Sanatorium, with laundry and residential quarters, the Gymnasium and Workshops, and the Natural Science Schools and Laboratories; Christ Church, Zanzibar, for Bishop Steere, who superintended the erection of the church on the site of the old slave-market; the rebuilding of Nos. 7–8 Bloomsbury Square, W.C.; and the large block opposite the British Museum, consisting originally of Russell, the Duke's, and Montague Mansions (since modified as Museum Mansions, the Thackeray Hotel, and Great Russell Mansions), together with Nos. 50–51 Great Russell Street, built in 1891–6 between Bury and Museum Streets on the site of twenty-two houses in Great Russell Street and Gilbert Street at the rear. About forty-five years ago Mr. Hayward formulated a scheme for the reparation of the Church of St. Peter, Colchester; his designs for a reconstruction of the brick-cased tower were partially carried out, and he designed the stone case for the illuminated clock-dials sustained by a projecting ornamental support of Portland stone. In 1870 Mr. Hayward was employed as architect for the further alteration and improvement of Nash's Gothic Church of St. Mary in Brunswick Street, Haggerston, N.; and in 1878 for the similar treatment of Coleman's late Gothic Church of St. Philip in New Street, Stepney, E. Mr. Hayward was architect of the Harrow Local Board Offices and Fire Station, of many houses and mansions in London and the provinces, amongst which may be instanced a house, for Mr. Baxendale, in Brook Street, Mayfair, and a large half-timbered mansion, Golrennick, near St. Germans, Cornwall, for Mr. Trelawney; "The Firs," Worplesden, Surrey (1886); Copse Hill, for Mr. Brassey; many houses at Halstead, and (including one for himself) at Godalming and the vicinity; several private houses and masters' houses at Harrow; a large hotel at Aberystwith (with Mr. Davies); Nos. 192–4, 258–66, and 242–4 Oxford Street; and Nos. 141–4 Drury Lane, for Messrs. Lambert & Butler, being the last work he did in a private capacity; and he prepared some designs for the St. Giles-in-the-Fields (now Holborn) Public Library. In 1886–7 he carried out the enlargement and improvement of Holy Trinity Church in Little Queen Street (now Kingsway), rearranging the interior and changing the position of the altar from east to west. His most recent work includes the designs, as a tribute of friendship, for the elaborated Snelgrove memorial chancel screen in Ilsham St. Matthias Parish Church, Torquay, and he made the designs for the reredos, executed in alabaster and encaustic tiles, in Lawford Church, Essex, in memory of the late Honourable John Robertson, of Lawford Place. Mr. Hayward bestowed much care and labour upon the reinstatement (1897) for his own occupation of the half-timbered house, built in 1431, and known as the Guest Hall, at Lingfield. He restored the church, and wrote an historical account of the Towers at Layer Marney; and made the illustrations for Mr. F. Harrison's book upon Sutton Place, Guildford. Mr. Hayward was a Fellow of the Society of Antiquaries and a member of the Council of the London Topographical Society. Some interesting reminiscences of his own pupil days are given in his obituary notice of the late Mr. S. J. Nicholl in the JOURNAL for 22nd April last.

The late Charles Henry Howell [*F.*]

The Institute has lost one of its oldest members in Mr. C. H. Howell, of Lynwood, Leatherhead, who passed away on the 22nd June at the age of eighty-one years. Mr. Howell was elected an Associate of the Institute in 1848, a Fellow in 1861, and was placed on the list of Retired Fellows in 1896. Until his retirement from practice, about ten years ago, he had been surveyor of public buildings for the county of Surrey; he was formerly architect to the Lunacy Commissioners, and surveyor to the Norwich Union Insurance Company. He made the plans and designs for the County Hall at Kingston-on-Thames, and was employed in the erection of several asylums and similar buildings. At the Institute meeting on the 3rd instant a vote of sympathy and condolence was passed to the relatives of the deceased member.

The late Joseph Wood [*F.*].

Mr. Joseph Wood, of Bristol, who died on 27th June, was admitted to Fellowship of the Institute in December 1902, having been elected by the Council under the terms of the proviso to By-law 9 during his presidency of the Bristol Society of Architects. Mr. Wood, who had been in active practice for nearly sixty years, was articled at Exeter at about the age of seventeen, and entered the office of the late Thomas Foster at twenty-two. For more than fifty years he held the appointment of Surveyor to the Trustees of the Bristol Municipal Charities. He himself considered his most successful works to be the restoration of Stoke House, an Elizabethan mansion near Bristol; the Victoria Chapel, Clifton; and perhaps the Chapel of the Trinity Almshouses. His works also include the Royal Promenade, Clifton; Clevedon Hall, near Bristol (one façade of which was designed by his late partner, Mr. John Foster); the Langford Homes; a small church at Stert, near Bridgwater; numerous chapels, schools, country houses, banks, and other business premises. Mr. Wood was closely identified with the affairs of the Bristol Society from its foundation, in later years was annually re-elected Vice-President, and served two years as President. At the Special General Meeting of the Institute on the 3rd inst. sympathetic allusion was made to his death, and a vote of condolence was passed to his relatives. Mr. Joseph Foster Wood [*A.*], of Bristol, is a son of the late Fellow.

Honours and Appointments.

The University of Dublin has conferred the honorary degree of Doctor of Laws upon Sir Thomas Drew, P.R.H.A. [*F.*].

Sir L. Alma Tadema, R.A. [*H.F.*], has received at the hands of the King the decoration of the Order of Merit.

The President and Council of the Royal Society of Painters in Water-colour have unanimously elected Mr. John W. Simpson [*F.*] and Mr. Maxwell Ayrton [*A.*] to be architects to the Society.

Re Election of Members, 5th June.

4, *Elm Court Temple, E.C.*: *28th June* 1905.

To the Editor Journal R.I.B.A.

Sir,—As in the Journal of June 10th, page 158, I am credited with being one of the spokesmen for the Associates, may I claim space to say that I acted in conjunction with no one? No member more than myself desires the inclusion in the ranks of the Institute of architects of repute.

In asking the question, "Have any of the twenty-two non-members offering themselves for election to-night ever presented themselves for examination by the Institute?" I wished, if possible, to satisfy myself that the Council had, in considering their qualifications, taken steps to prevent any more regrettable incidents such as occurred at the Business Meeting on March 6th.

On that occasion it was announced, as result of a ballot, that a provincial candidate objected to by the local members but approved by the Council had been rejected by the members of the Institute. A most undesirable situation. I venture to think one of the reasons for objection given by the local members was that the candidate, after passing the Preliminary Examination and submitting the testimonies of study required for the Intermediate, had had them refused by the Council. Comment is needless.

On the same evening another provincial candidate opposed by the Local Society was upon a show of hands in open meeting declared not elected. The objections in this case were almost precisely like the other.

In view of the fact that the election of non-members is to continue till the end of 1906, may I venture to predict that, if such an assurance as I asked for might be given in the future, opposition on the part of a considerable number, if indeed not all, of the younger members of the Institute would at once cease?—I am, yours truly,

K. Gammell, *Associate.*

MINUTES.

At a Special General Meeting—summoned in accordance with By-law 60, on the requisition of Messrs. S. B. Russell, Alfred H. Hart, T. Edwin Cooper, Herbert Wigglesworth, Alfred W. S. Cross, Wm. Flockhart, C. E. Mallows, R. Stephen Ayling, *Fellows*; Thomas A. Pole, H. V. Lanchester, J. E. Newberry, Herbert W. Wills, John Anderson, *Associates*—held Monday, 3rd July: Present, Mr. John Belcher, A.R.A., *President*, in the Chair; 19 Fellows (including 10 members of the Council) and 16 Associates (including 1 member of the Council), the Minutes of the Meeting held 19th June [p. 536] were taken as read and signed as correct.

The Hon. Secretary having announced the decease of Charles Henry Howell, elected *Associate* 1848, *Fellow* 1861, placed on list of *Retired Fellows* 1896; and Joseph Wood, *Fellow*, elected 1892, Past President of the Bristol Society of Architects, a vote of condolence was passed to the relatives of the deceased members.

The following Fellows attending for the first time since their election were formally admitted by the President and signed the register: viz. Joseph Craddock Perkin and Edwin James Sadgrove.

The President explained that the Meeting had been summoned to discuss the following amendments, proposed by the above-named requisitionists, to the Regulations for Architectural Competitions passed at the Meetings of the 1st May and 5th June [see *Minutes*, pp. 456 and 524]: viz.—

1. Clause 14 to read as follows:—

> "In all works costing an estimated sum of £25,000 and upwards, three Assessors to be appointed unless there are insurmountable objections. As stated above, the President of the Royal Institute of British Architects is always ready to advise on this or other points." *

2. The clause as to Scale of Charges in the original draft to be reinstated in the following form:—

> "The usual R.I.B.A. Scale of Charges for assessing Competitions is at the minimum rate of Thirty Guineas plus $\frac{1}{5}$ per cent. upon the estimated cost of the proposed building."

Mr. H. V. Lanchester [*A.*] having moved and Mr. Herbert W. Wills [*A.*] seconded, that clause 14 be amended and adopted in the form proposed by the requisitionists, the resolution was discussed, and the sense of the Meeting on the question having been taken by show of hands, the resolution was declared negatived.

A proposal by Mr. Edwin T. Hall [*F.*], seconded by Mr. H. V. Lanchester [*A.*], was accepted by the President, that an Instruction to Assessors be incorporated in the Competition Papers that in making their award they should decide only on the Conditions on which the Competition had been invited.

Mr. H. V. Lanchester [*A.*], seconded by Mr. A. W. S. Cross, M.A. [*F.*], having moved that the clause as to the Scale of Charges struck out at the Meeting of the 1st May be reinstated in the form proposed by the requisitionists, the Meeting discussed the proposal, and ultimately agreed to the reinstatement of the clause in the following form—viz.—

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* The clause as already passed stood as follows:—"In the case of works of considerable magnitude it is desirable that three Assessors should be appointed. As stated above, the President of the Institute is always ready to advise on this or other points."

> "That the usual R.I.B.A. Scale of Charges for assessing competitions is the sum of Thirty Guineas plus $\frac{1}{5}$ per cent. upon the estimated cost of the proposed building."

Finally, a motion by the President was carried that the Paper as revised be printed and issued as an Institute document under the title of "Regulations for Architectural Competitions: approved by the Royal Institute of British Architects."

The proceedings then closed, and the Meeting separated at 9.30 p.m.

PROPOSALS FOR THE ENROLMENT OF ARCHITECTS.

This Report and Draft Bill for the Statutory Enrolment of Architects are here printed and circulated in accordance with the Resolution of the late Council at their Meeting held on the 19th June 1905.

AT a General Business Meeting on Monday, 4th January 1904, the following resolution was carried:—"That a committee, consisting of the Council of the Royal Institute of British Architects and representatives of the Allied Societies, be appointed to consider the principle of Registration, and to report thereon to a Special General Meeting."

This Registration Committee met, and on the 19th October 1904 passed a resolution that a sub-committee be appointed to whom it be a reference "to formulate a scheme for the compulsory Training, Education, Examination, and Statutory Qualification of Architects." This sub-committee, which has met monthly, holding morning and afternoon sittings, considers that the satisfactory Training, Education, and Examination can only be secured by means of the statutory qualification of architects.

The present system of obligatory examination having proved of great advantage to the Institute and the profession, the extension of this system by making it compulsory on all intending architects would still further improve their status.

The matters of Architectural Training and Education have received consideration at the hands of the Board of Architectural Education, who have suggested a system of training and education which might be taken as a guide for any further steps contemplated by the Institute.

The obligatory examinations conducted by the Institute have proved so successful that your Committee do not at present suggest any change in the conduct of these, but rather that this system be made compulsory upon all intending architects; and your Committee, being strongly influenced by this view, have prepared a Bill for the Statutory Enrolment of Architects.

This Bill has been drafted by the solicitors to the Institute and settled by Mr. Cripps, K.C., and Mr. Clode, and is presented herewith as the scheme for the statutory qualification of architects, with a view to this question being considered at a Special General Meeting.

This Committee strongly urges that the present Report, including the Bill, be printed and circulated forthwith to all members of the Institute.

Memorandum.

The Bill is promoted by the Royal Institute of British Architects incorporated by Royal Charter, 7 William IV. and 50 Victoria, for the general advancement of Civil Architecture and for promoting and facilitating the acquirement of the knowledge of the various arts and sciences connected therewith.

By their Charter the Institute were entrusted with and now possess powers of examining candidates for their Diploma, and by these means of exercising a salutary influence upon the profession of Civil Architecture.

During the period which has elapsed since its incorporation the Institute has become and now is the body which is most representative of the profession, and this position has been so far recognised by Parliament that their Certificate of competency has been made by Statute necessary for the discharge of the responsible public office of District Surveyor.

The objects of the Bill are:—

(A) To enable persons requiring professional aid in the design and construction of buildings to distinguish qualified from unqualified practitioners, and to prevent untrained and incompetent persons, styling themselves architects, from imposing on the community to its material loss, danger and detriment;

(B) To confine the use of the title "Architect" to persons enrolled under the provisions of this Bill and also to provide for the maintenance of a Register of all such qualified persons;

(C) To create an Administrative Board of Architects composed of the Council of the Institute, representatives of the Societies of Architects other than the Institute, and also representatives (not exceeding ten) of Universities, Institutes, and other bodies which the Privy Council may determine to be entitled to representation. Such Board to regulate the conduct of examinations, the issue and cancellation of certificates and the removal or restoration of names from and to the Register, and generally to exercise disciplinary power over all Architects with the object of promoting their efficiency and usefulness. Any rules framed by the Board to be valid only if approved by the Privy Council.

The Promoters would point out that they do not in promoting this Bill limit or in any way affect the right of those persons practising as surveyors or as builders from exercising their respective callings in as ample a manner as heretofore so long as they do not use the title of Architect.

ARRANGEMENT OF CLAUSES.

Clause.

1. Enrolment.
2. Provision for persons now qualified.
3. Qualifying examination for enrolment.
4. Constitution of Administrative Board of Architecture.
5. Duties of Administrative Board.
6. Roll to be kept.
7. Contents of roll.
8. Printed copies to be published annually and to be evidence of contents of roll.
9. Registrar.
10. Refusal to register.
11. Removal of names and alteration of roll.
12. Removal of names of convicted persons, &c.
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SCHEDULES.

A
BILL
TO
SECURE THE ENROLMENT OF ARCHITECTS.

Be it enacted by the King's most Excellent Majesty by and with the advice and consent of the Lords Spiritual and Temporal and Commons in this present Parliament assembled, and by the authority of the same as follows:—

Enrolment.

1.—(1) After the first day of July one thousand nine hundred and seven a person shall not be entitled to describe himself as an architect whether by advertisement, by description on his place of business, by any document issued by him, or otherwise, unless he is enrolled as an architect in pursuance of this Act.

(2) If any person either alone or in conjunction with any other person or body of persons knowingly describes himself as an architect in contravention of this section, either by taking or using any other name, title, abbreviation, letters, or description, calculated to induce people to believe that he is enrolled under this Act or is a person qualified to practise architecture he shall be liable on summary conviction to a fine not exceeding *twenty pounds*, and to be restrained by injunction or interdict from using such description.

(3) Partnerships Societies or other associations of persons carrying on business under a common name, and whether corporate or incorporate, shall not be entitled to be enrolled under this Act.

Provision for persons now qualified.

2. Any person who within one year from the date of this Act coming into operation claims to be enrolled under this Act shall be so enrolled, provided—

(1) He is either a Fellow or Associate of the Royal Institute of British Architects, or being a member of any one of the allied societies or of the Society of Architects or of the Ulster Society of Architects, was at the passing of this Act in *bonâ fide* practice as an architect, or

(2) Has obtained by examination and holds a degree in architecture conferred by any university within the United Kingdom or has such other qualification as may be approved by the Board, or

(3) Proves to the satisfaction of the Board that at the passing of this Act he had been for at least two years engaged as a principal in the *bonâ fide* practice of architecture, or had served for ten years as pupil, apprentice, or assistant, or partly as one and partly as the other to a person or persons who at the passing of this Act is or are entitled to be enrolled under this Act.

Qualifying examination for enrolment.

3. Subject to the provisions of section two of this Act no person shall be entitled to be enrolled as an architect unless he has served as apprentice or assistant or partly as one and partly as the other for not less than five years with a person enrolled or entitled at the passing of this Act to be enrolled under this Act and has passed and produces or transmits to the Registrar a certificate under the seal of the Board that he has passed such examinations as to his knowledge of architecture, and of the practice and duties of an architect, as the Board shall from time to time prescribe. Provided always that any person who has passed all the examinations required to be passed for membership of the Institute shall, subject to the provisions of this Act, be entitled to enrolment without further examination.

Constitution of Administrative Board.

4. From and after the passing of this Act, and notwithstanding anything contained in any charter or bye-law of the Institute, there shall for the purposes of this Act only be added in each year to the Council one person if nominated by the Royal Institute of Architects in Ireland, one person if nominated by the Architectural Association of London, one person if nominated by the Society of Architects, one person if nominated by the Ulster Society of Architects, the Presidents of such of the Allied Societies as may not for the time being be represented upon the Council, and such other persons (not exceeding ten in number), as may be nominated by any such Universities, Institutes, Societies, Associations, and bodies (other than the Institute and Allied Societies) as the Privy Council shall from time to time determine to be entitled to representation. Any vacancy occurring by resignation or death amongst the persons nominated under the foregoing provisions shall be filled up by the body nominating such person, and the original and any subsequent nominees shall at the termination of the period for which they have been appointed be eligible to be renominated.

Duties of Administrative Board.

5. The Council and the persons added thereto under the provisions of the last preceding section shall together form and be the Administrative Board of Architecture.

The duties and powers of the Board shall be as follows:—

(1) To frame rules regulating—
  (A) Their own proceedings;
  (B) The course of training and the subjects for examination;
  (C) The issue of certificates;

(2) To appoint and remove examiners, and determine the remuneration by fees or otherwise of the examiners so appointed;

(3) To fix the places where and the times when examinations shall be held, and to determine the notices to be given of examinations;

(4) To issue and cancel certificates;

(5) To decide upon the removal from the roll of the name of any enrolled architect liable to be removed from the roll under the provisions of this Act, and also to decide upon the restoration to the roll of the name of any architect so removed;

and generally do any other act or duty which may be necessary for the due and proper carrying out of the provisions of this Act so far as they relate to the Board.

Rules framed under this section shall be valid only if approved by the Privy Council.

Roll to be kept.

6. A roll shall be kept by the Board subject to the provisions of this Act, and any rules for the enrolment of architects made in pursuance of this Act.

Contents of roll.

7. The roll shall contain in one list all architects who are enrolled under this Act and any rules hereunder. Such list shall be made out alphabetically according to the surnames of the persons enrolled, and shall also contain the full name of each person enrolled with his address, the date of enrolment, and a mention of any honours, memberships, or other additions to the name of the person enrolled which the Board may consider worthy of mention in the roll. The roll shall be in the form given in Schedule A with such variations as may be required.

Printed copies to be published annually, and to be evidence of contents of roll.

8. The Board shall cause a correct copy of the roll to be once in every year printed under their direction, and published and placed on sale. Such correct copy shall in the year one thousand nine hundred and seven be printed and published at as early a date as possible, and in every year subsequent to the year one thousand nine hundred and seven shall be printed and published on or before the thirty-first day of January. A copy of the roll for the time being purporting to be so printed and published shall be admissible as evidence of all matters stated therein, and the absence of the name of any person from the roll shall be evidence, until the contrary is made to appear, that such person is not enrolled in pursuance of this Act.

Registrar.

9. The Board shall appoint a Registrar, who shall keep the roll in accordance with the provisions of this Act, and any rules hereunder.

Refusal to register.

10. The Board may direct the Registrar not to enrol any person who is proved to the satisfaction of the Board—

(1) To have been convicted in His Majesty's dominions or elsewhere of any offence which if committed in England would be a felony or misdemeanour, or to have been declared by any court of competent jurisdiction to have committed any fraud; or

(2) To have been guilty of disgraceful professional conduct.

Provided that before any person shall be adjudged guilty of disgraceful professional conduct such person shall receive one month's notice of the charge brought against him, and have an opportunity of defending himself from the same.

Removal of names and alteration of roll.

11. The Registrar shall remove a name from the roll in the following cases:—

(1) At the request or with the consent of the person whose name is removed;

(2) When the enrolled person is dead;

(3) When required so to do by the Board;

and shall from time to time insert in the roll any alteration which may come to his knowledge in the name or address of any person enrolled.

In the execution of these duties the Registrar shall in each case act upon such evidence as appears to him sufficient.

Removal of names of convicted persons, &c.

12. The Board may direct the Registrar to remove the name of any person enrolled from the roll in the following cases:—

(1) Where it is proved to the satisfaction of the Board to have been incorrectly or fraudulently entered;

(2) Where any person enrolled shall be convicted in His Majesty's dominions or elsewhere of any offence which if committed in England would be a felony or misdemeanour, or to have been declared by any court of competent jurisdiction to have committed any fraud;

(3) Where, after due inquiry, it is proved to the satisfaction of the Board that the person enrolled has been guilty of disgraceful professional conduct;

(4) When a person having been enrolled under this Act enters into or begins to follow any other business or occupation not in the opinion of the Board incident to or consistent with that of an architect.

Provided always that before any person's name shall be removed from the roll upon any of the grounds specified in Subsections (1), (3), and (4) of this section, such person shall have one month's notice of the charge brought against him, and have an opportunity of defending himself from the same.

Appeal from decision of Administrative Board.

13. Any person thinking himself aggrieved by any decision of the Board refusing him enrolment or directing the removal of his name from the roll of architects may appeal therefrom to the High Court of Justice within three months after the notification of such decision to him, but no further appeal shall be allowed.

Restoration of names removed.

14.—(1) Where a name has been removed from the roll at the direction of the Board the name of the person shall not again be entered in the roll except by order of the Board.

(2) The Board may in any case in which they think fit restore to the roll such name removed therefrom either without fee or on payment of such fee not exceeding the enrolment fee as the Board may from time to time fix, and the Registrar shall restore the name accordingly.

(3) The name of any person removed from the roll at the request or with the consent of such person shall unless it might if not so removed have been removed by the direction of the Board be restored to the roll by the Registrar on the application of such person and on payment of such fee not exceeding the enrolment fee as the Board shall from time to time fix.

Fees.

15. Such reasonable fees shall be paid in respect of the several matters and at the times and in the manner set forth in Schedule B to this Act as the Privy Council may from time to time by order signed by the Clerk to the Privy Council direct and fix, with a view to meeting the expenses incurred by the Board and the Institute in the Administration of this Act.

Application of Fees.

16. All fees paid under or by virtue of this Act shall be paid to the Institute, who shall apply the same as follows:—

(1) In payment of all expenses incurred by the Board connected with the examination and enrolment and removal of persons enrolled or applying to be examined or enrolled under this Act;

(2) In payment of the general expenses of the Board and the Institute in connection with and incidental to the provision and maintenance of the roll and the administration of this Act;

(3) In promoting and facilitating the acquirement of the knowledge of such of the various arts and sciences connected with Civil Architecture as the Institute may from time to time determine.

The Institute shall, as soon as practicable after the thirty-first day of December in each year, publish a financial statement made up to that date showing the receipts and expenditure including liabilities of the Board and the Institute under this Act during the year, which statement shall be certified as correct by an accountant who shall be a Chartered Accountant.

17. Any person who procures, or attempts to procure, himself to be enrolled under this Act by making, or pro-

Penalty for obtaining a certificate by false representation.

ducing, or causing to be made or produced, any false or fraudulent representation or declaration, either verbally or in writing or otherwise, and every person aiding and assisting him therein, shall be deemed guilty of a misdemeanour in England or Ireland, and in Scotland of a crime or offence punishable by fine or imprisonment, and shall on conviction thereof be sentenced to be imprisoned for any term not exceeding twelve months.

Penalty for wilful falsification of roll.

18. Any person wilfully making, or causing to be made, any falsification in any matter relating to the Roll of Architects shall be deemed guilty of a misdemeanour in England or Ireland, and in Scotland of a crime or offence punishable by imprisonment, and shall on conviction thereof be sentenced to be imprisoned for any term not exceeding twelve months.

Scale fees.

19. From the date of this Act coming into operation—

(1) The charges for professional services to be made by an architect enrolled under this Act shall in the absence of agreement to the contrary be the charges of which particulars are contained in Schedule C to this Act, or such other scale of charges as may from time to time upon the application of the Board be sanctioned by the Privy Council in lieu of the charges contained in the said schedule;

(2) No person other than a person enrolled and holding a practising certificate granted under the provisions of this Act shall be entitled to practise as an architect or to recover the above or any charges for services rendered in the capacity of architect.

Provided that nothing herein contained shall prejudice the right of professional members of the Institution of Civil Engineers or Surveyors' Institution to recover charges for work of any kind falling within the duties of their respective callings.

Act not to apply to naval architects.

20. Nothing in this Act respecting architects shall apply to persons practising as naval architects.

Interpretation.

21. In this Act—

The term "the Council" means the Council of the Institute;

"The Institute" means the Royal Institute of British Architects, incorporated by Royal Charter, 7 Wm. IV. and 50 Vict.;

"The allied Societies" means the following Institutes, Societies, and Associations, viz. Royal Institute of Architects of Ireland, Manchester Society of Architects, Nottingham Architectural Society, Leeds and Yorks Architectural Society, Birmingham Architectural Association, York Architectural Association, Leicester and Leicestershire Society of Architects, Glasgow Institute of Architects, Bristol Society of Architects, Sheffield Society of Architects and Surveyors, the Aberdeen Society of Architects, the Edinburgh Architectural Association, the Northern Architectural Association, the Liverpool Architectural Association, Devon and Exeter Architectural Association, the Dundee Institute of Architecture, Science, and Art, the Cardiff, South Wales, and Monmouthshire Society of Architects, and such other Institutes, Societies and Associations as shall from time to time be allied to the Institute under the provisions in that behalf contained in the Charter and By-laws of the Institute;

"Architect" means a person enrolled under this Act;

"Board" means the Administrative Board of Architecture created by this Act.

Short title and commencement.

22. This Act may be cited as the Architects Act, 1906. It shall come into operation on the first day of July, one thousand nine hundred and seven.

SCHEDULE A.

Name.	Address.	Date of Roll.	How Admitted.	Designation and Distinctions.

SCHEDULE B.

Nature of Fee.	When to be Paid.	To whom to be Paid.
For enrolment of name of architect under provisions of Section 2.	On application and before enrolment.	To the Registrar at the Institute.
For enrolment of name of any person other than as above.	Ditto.	Ditto.
Annual fee to be paid by every enrolled architect taking out a practising certificate.	On or before November 30 of each year in respect of the year commencing January 1 following.	Ditto.
On entry of any candidate for final qualifying examination.	At time of entering.	Ditto.
On entry of any candidate for any examination other than as above.	Ditto.	Ditto.

SCHEDULE C.

Scale of Charges.

PAST TRADITION AND MODERN DESIGN.

By Percy S. Worthington [*A.*], M.A. Oxon., *Institute Essay Medallist* 1889.

Read before the Leeds and Yorkshire Architectural Society, March 1905.

WHEN your Honorary Secretary, Mr. Oglesby, conveyed the honour of an invitation to read a Paper before you it occurred to me that, as you already had a number of historical Papers on your list, and as I had myself—though many years ago—inflicted an archæological lecture upon you, you might care to discuss some phase of the educational problem, and that the relationship of theoretical study to actual practice in design might be interesting.

I sent him a title from Norway—far enough away, you would think, from architectural microbes—and set about the writing in order to get it off my mind as soon as possible. Since then I have spent the time in periodical fits of desperation, as Paper after Paper and article after article has appeared in the Institute Journal, the *Architectural Review*, and the professional papers, all dealing with the subject that I had, in my innocence, chosen; and I have written and rewritten and cut out all my choice bits because they have been better said than I can possibly say them. *Di meliora piis.*

In taking stock of the architectural position of to-day the difference readily occurs to us between the conscious effort after design and arbitrary choice of styles which are the mark, to speak roughly, of the last hundred years, and the traditional work of preceding centuries; in other words, the difference between individualism and national co-operation in design; and, acknowledging our debt to tradition and to the past, we ask ourselves how we may make the best use of our inheritance.

I must take for granted, and put entirely on one side, the science of constructive methods, which we have known from our youth upwards to form the bottom of all true building, and confine myself to the æsthetic side of the subject; for, after all, the great buildings to which we have been accustomed to turn for our education as architects, and our pleasure as artists, do not, as a rule, appeal to us *primarily* as problems of successful construction, but as the fine artistic expression of those problems; and we cannot conceal from ourselves the fact that, however skilful we may be in the science of construction, we can never hope for any sort of a niche in the Temple of Fame, or have any satisfaction from any but the lowest standpoint, unless we can produce buildings of sufficient beauty to obtain a verdict from the educated opinion of future generations. To secure this verdict a building, even if it is not a work of genius, must at any rate show the evidences of careful and competent thought. It must have essential beauty, and it must not bear the impress of whims or eccentricities which will appear incongruous to any man at any time. It must be based upon certain canons or laws that have hitherto seemed unalterable, and to which we still see no determination; and it must have an expressive character of its own which differentiates it from any other building.

We have heard a great deal lately of national degeneration, of decay—mental, moral, physical, and, I need hardly add, fiscal—and, while everyone has his panacea, one of the remedies most generally suggested is education. One is inclined to fear that, if we are dependent upon artificial stimulus, educational or other, and have lost the power of throwing up great men without it, we shall find it hard as a nation to stand against rougher and stronger material; for genius will make its way without such help, and no great development has been the result of organised and conscious education; while famous architects have become so, not through the schools, but by virtue of self-training. In fact, any educational system must be devised, not for genius, but for the assistance of average and low ability.

In this matter of professional education we are certainly behind some other countries. Theoretically English work should fall hopelessly in the rear, but practically one is inclined to think that this is not so, and that our methods are rather favourable than otherwise for men of enthusiasm and determination. At the same time it is too evident that some very great improvement can and ought to be effected. Germany, France, and America are usually cited as countries in which the science and art of education are most thoroughly understood. France has always been the home of the arts, and the quick apprehension and versatile genius of her people stand her in good stead now as always in the past: her training is vastly ambitious, and in this there is a lesson as well as a warning to ourselves. America shares with France a facility for brilliant draughtsmanship, but the training does not seem to produce great results in practice, while the products of Germany, with the most highly systematised training of all, are very largely appalling.

And the problem for us now is, it seems to me, how to produce a judicious system which will not concern itself so much with archæological lore, or brilliant draughtsmanship, or with fits of some new art, but one which will graft upon a thorough and comprehensive knowledge of past traditions canons of criticism, unerring taste, original thought, and a sense of rhythm and beauty which may lead to progress and individuality of building. Of course education and training cannot pretend to do this for all men, and we must have a gifted and highly trained staff of professors if they can do it for the majority of those who intend to be architects.

Before pursuing this theme one word as to the distinction to which I referred between individual and national or co-operative work. Without entering into a long historical survey, we may note three large divisions into which, from the point of view of this Paper, architectural history in this country may naturally fall. We need not concern ourselves with origins, but, from the first beginnings of our national architecture, you have a period of pure tradition when decade by decade a steady and almost imperceptible succession of changes went on with occasional periods of more marked movement like rapids dividing the quiet reaches of a great river, each reach different in character, but each traversed by the same strong stream with its outlying backwaters and stiller pools. Then there is a sudden break and change, just as (to continue the simile) we may see among the limestone hills a stream suddenly vanishing and as suddenly reappearing with a different character among different surroundings. Now we have lost the nameless traditional building character. A new ideal exists; the work has a different dress; the inspiration is due to a great European modern intellectual movement, instead of to the conditions of mediæval life and thought. To every building of importance, and to many of no particular importance, is attached a name; and so, while a new tradition is established and follows on its course for three hundred as the old had done for five hundred years, the development is due, not to the nameless effort of a nation, but to that of individuals, restrained, however, by new but firmly established traditions which no one thought of discarding, whatever the type of building to be erected, though, with new methods and new ideals, the individual still worked, as it were, in a great national school. As the intellectual form of the movement waned, the style changed and gradually played itself out, and then development upon traditional lines stopped to give place to a period of purely individual and personal character when architects recognised no controlling influence from tradition, and returned again to a Greek or mediæval revival, without the Greek or mediæval spirit, but picked and chose at will a church in one style, a mansion in another, and a town hall in a third.

It seems that the conditions of life are such that there will be no return to the old order of things. To some extent we have to-day got back again to a happier ideal than has existed for some time past; but universal competition between man and man, the cosmopolitan state of society, and the accumulation of riches, all tend to accentuate individualism as opposed to co-operation; while the introduction of new materials and the development of commercial conditions and instincts still further open the door to constructive ability and business smartness as distinct from the study of architecture as an art.

The greatest periods of architecture have been those which are the expression of high standards of religious, intellectual, or social movement, just as are the greatest periods of painting or literature; and though it is often said of individuals that they were the originators of such and such movements, they are often, perhaps, only the quicker-minded men who anticipate the awakening consciousness of the masses of their time and give the necessary impulse. To-day our instincts, religious, intellectual, and social, are so heterogeneous that there is no controlling force to bind individual to individual, and there is therefore all the more reason why some sound common training should be found to inculcate at any rate first principles and form a nucleus for further progress. But, for all this, the age in which we live is, or ought to be, a great one for architects.

One seems to know very little of the education of most of our predecessors. Of our fathers we should probably say that they were educated in So-and-so's office, and that they travelled here and there. Of ourselves we may say much the same, but perhaps also add that more of us had the advantages of the Academy schools or the Architectural Association in its earlier stage; and those of generations younger will tell us of this or that school and this or that degree. Mediæval builders we connect with companies and guilds of working artificers from among the ranks of which few names have survived, and even of the early training of the Renaissance schools we have only here and there a glimpse. The student or apprentice of the fifteenth, sixteenth, and seventeenth centuries was trained in the three arts of sculpture, painting, and architecture. In after life, as we know, he often practised all three, and, assisted by early training in the goldsmith's workshop, he was able to produce, not only beautiful construction, but possessed, as part of his designing faculties, a working knowledge of the sister arts. Here, then, is a suggestion for us. I believe that we could all of us have sufficient practical knowledge, too, of these arts to design our buildings with a view to them, and to work with fellow-artists so that they shall have their proper chance. As a rule we cannot or do not. Possibly the idea does not occur, but one of the functions of education is to open the eyes to all opportunities and to their full and proper utilisation. One does not come across books much with reference to Renaissance training. Here we have an immense advantage, and must guard against the attendant dangers of so easy an accessibility to books which I hope to have time to advert to later. Raphael complains in a letter to Castiglione that Vitruvius does not help him as much as he ought, and Inigo Jones took his Palladio to Italy and annotated it. Raphael revelled in the measurement of the antiquities of Rome, for which, from his official position, he had unrivalled opportunities; and San Michele wandered from Rome to Venice, and Venice to Padua, and from Padua on again. Buildings were books then as now, and their measurement formed the self-education of the architect, whether he worked, as Peruzzi did, with an eye to the composition of his architectural backgrounds, or, as Brunelleschi, with the definite idea of constructing his dome at Florence, as Raphael by command of the Pope, or as Scamozzi exercising his powers of design in restoring upon paper the buildings whose remains he had measured.

Few of the great men were exclusively architects, and our own greatest genius took up the work in middle life without special training for the practice of any art. We gather, therefore, of the Renaissance architect—

(1) That he was master of more than his own special branch of art.

(2) That his principal school was antiquity.

(3) That the product was something fresh, and constituted the greatest of modern revivals.

The mine in which he dug was that of classical antiquity prompted by the drift which all thought was taking at the time. Antiquity was his natural inheritance. With us in England to-day conditions are different and yet the same, and we can hardly afford to ignore his experience, and may take it as an axiom that, for the intelligent study and practice of design, a knowledge of the history and architecture of past times generally is essential; at any rate we have not yet found a substitute, and we have to determine how to attain two objects—(1) how to acquire knowledge of the right kind with a view to education in the broadest and best sense, and (2) how to help in the formation of style. And it has to be realised that it is not the mere measurement of an order or of anything else that is of educational value, but the logic and reason of parts and proportions; that it is not the acceptance of ready-made rules, but the search for principles upon which those rules are founded that matters; and that it is the absorption and application of the principles of beauty underlying all great work, of whatever age or country, that can alone create future progress. Individual thought, imagination, and skill will then decide what that progress is to be, and may lead to unexpected developments; but in any case the majority must rely upon their training in the schools for an educative influence which they will not acquire later.

Granted fundamental constructive knowledge, the whole question of progress resolves itself, to my mind, into a search after that elusive and indefinable quality, *style*—not *a* style, nor a suitable selection of styles from the past, but something that is acquired by the study of the best in all of them, the result of conscious and unconscious absorption, of thought and enthusiasm, of the cultivation of mind, and hand, and eye. "All is food for you. It is only in that way, by harvesting every grain of corn, that you can be great; a lot of harvesting is done unconsciously: supplement that by conscious harvesting." This was said of music, but it is equally true of our own study of the past as well as of other and more modern usage, and the success of the harvesting depends largely upon the preparation of the soil into which the grain is cast. You may say that everyone has not the will or the power to be great. But the schools should foster ambition to aim at the best and weed out those that show no aptitude.

There must always be leaders; a dead monotony is the last thing to strive for; but leaders can do more for others, and the majority learn more from their leaders when all have been to the best of their ability fellow-seekers after knowledge and style.

Greatness in building—I do not mean only large or important building—is difficult to define. One quality may be present in so supreme a degree that the absence of others may be almost overlooked. Ruskin's ethical classification of the lamps of sacrifice, truth, power, beauty, memory, and obedience gives us the abstract principles in their highest form; but such terms as stability, grandeur, mass, repose, proportion, harmony, beauty of detail, line and colour, or of light and shade are always in our minds, and mean more or less in theory and practice according to the mental attitude or power of the individual. The quality "style" embraces them all, but it contains a further idea—namely, the possession of a controlling force which will unerringly guide the individual aright to whatever he puts his hand, and especially when he finds himself out of harmony or at variance with tradition; and, at a time when tradition is in the melting-pot, that quality becomes the touchstone by which all things are tried—I mean, of course, what, for want of a better term, we call "taste," implying an innate aptitude developed and fostered by education and experiment. Taste may be acquired to some degree by education and experiment without being inborn, and these means should be within the reach of all. They are, therefore, of great importance. To try experiment in design without education is for most men waste of time and probably worse. To know what has been done is a good step towards arriving at what may be accomplished, and what has taken centuries to evolve may be understood with diligence in comparatively few years. Knowledge is in itself power, but it is the business of the teacher, whose whole life is given to gaining and imparting knowledge, to encourage, as far as in him lies, the search for the beautiful, and the application of fresh energy and original thought to the old problems which recur and recur from generation to generation. In other words, to encourage experiment upon the basis of education, and so to train taste and develop style.

The antiquarian spirit seems to me a thing to be discouraged, and copying and plagiarism cannot be too sternly repressed from the beginning. A copyist tacitly acknowledges that the final say has been said, that he has surrendered his functions as a thinking being, and that the conditions of to-day are the same as those of yesterday; and it is not upon historical knowledge, but upon productive and progressive thought based upon that knowledge, that both individual and national architecture depends. Without that thought all work becomes unproductive and retrogressive.

Any system of education can deal with facts and point out what to study, but the inspiration of teaching comes from the man who can go a step further than that, and can show how to *think*—who can bring out great underlying principles, and, without imposing his own personality, induce the application of those principles to successful production.

I have no wish or intention to enter into the somewhat futile discussion as to whether it is possible to develop a new style in architecture. How far we are to develop upon purely individual lines, or how far upon those of schools of thought, will depend largely upon the particular development of our educational system. Individualism of the right kind—individual interpretation based upon thorough knowledge and confined within legitimate lines, and subject to the canons which always have, and always must, govern building—is the first thing we wish to encourage. "Il y a aura toujours une place pour l'homme à qui la nature a donné le secret de voir, de sentir, et de penser par lui-même." But is it not a legitimate object of ambition that the individual may once more work within a national style? We are Englishmen, proud of our race, and with a still strongly marked national character, and we have traditions of which we may also be proud. We want every architect to be an educated man; we have our schools in London, Leeds, Glasgow, Liverpool, Manchester, and elsewhere, and the Board of Education are making admirable efforts to co-ordinate the instruction given in various centres as much as possible. Is there not ground for hope that the unintelligible wanderings and vagaries of the near past may be abandoned, and common ground be once more felt under our feet, with well-restrained rivalry between local schools and between individual workers which may secure action and reaction of mind on mind, and progress in thought and work? I for one should rejoice in such a consummation.

Now I believe that there is nothing to prevent any fairly able man from selecting any particular phase in the evolution of the architectural art, nor by a process of mental sympathy, careful study, and continued and enthusiastic practice from obtaining so complete a grasp, not only of the external details, but also of the fundamental principles of the style he has chosen, that he can design in it with accuracy and facility, and by dint of his own thoughts or personality so apply the principles as to bring them fairly into line with the requirements of his day. If he succeeds on any scale we are grateful, and pay a tribute to his genius and to the help that sincere thought and work have brought.

But have such efforts, as a rule, anything but an antiquarian or personal interest? How about the Greek revivalists exemplified by, say, Thompson? There is much to learn from their scholarly methods, and we should be the poorer without many of their buildings; but is their work anything but an interlude without effect upon national architecture? How about the Anglo-Venetian efforts due to Ruskin's influence and writings? Are not the results pure exotics, however scholarly they may be? What would the builder of the Casa d'Oro have to say to them if he could see them in our grimy streets? How about the same influence which sent architects of a certain time to fill their sketch-books with French Gothic, to be reproduced with little regard to scale or fitness? Would not energies which were directed to producing churches and public buildings, the inspiration of which was consciously drawn from an arbitrary period in the history of a foreign country, have been better employed in developing their art along its natural lines? We may remember that the author and creator of their inspiration was declaring that St. Peter's was only fit for a ballroom.

But attempts have been made to go back to the beginning—to throw away all the intervening experience, and start *de novo*. If you are to try experiments with antiquity this is, at any rate, a logical thing to do. One may cite as an example that fine and distinguished work recently completed in Westminster. Personally I cannot but regret that its talented author was called upon to work in an alien style; and it is a tribute to his genius that the result is so fine, and so great an addition to the buildings of our time. It is fascinating to see the forms of the earliest Christian architecture adapted and thought out until we have a magnificent modern church suited to London atmosphere and light, and to its ritual and congregational purposes; unmistakably Byzantine in essential principle of design, yet so treated that it seems to take fresh life, vigour, and beauty in every detail.

And yet when all this and much more has been said it remains an exotic apart from our own life, and traditions, and methods of thought, like a beautiful interlude of song introduced into a play with no reference to the context, or a panel of Praxiteles built into a mediæval cathedral. One cannot help feeling that in less able hands, and with more ordinary opportunities, such attempts must degenerate into the mere stirring of dry bones and arid exercises in design.

As to the direction of studies with a view to developing powers of designing, one can but leave that to those whose business it is to teach. An educational system can, however, only put a man in the right way. It will take him along the broad highway of inquiry, and will note this sign-post and that lining the road on either side. It cannot do more than point out the byways and suggest excursions which the individual must follow up for himself; but it should insist on study for study's sake—not for the sake of picking, choosing, and pilfering, but for the encouragement of observation and the formation of a body of knowledge which shall serve as a starting-point for thought and experiment to which it will give an impetus upon the right lines. The ultimate result is in each one's hands.

Only one word by way of illustration of the study of principles. As we all know, beauty of building is very largely a matter of feeling for line. The apogee of line we are taught to find in the Parthenon, and the value of studying such a monument does not lie in examination knowledge and cram, in the mere archæological fact that the columns are 556 diameters high, that the curve of the stylobate is so and so; that the angle columns are set so much closer than the intermediate, and so on throughout the whole list. It lies, rather, in the training to eye and mind that complete recognition of the beauty of these refinements, and full realisation of their constructional object, will confer. With such recognition of beauty and realisation of its *raison d'être* an inspiration and an ideal are set up which must constantly guide the mind in whatever it is engaged upon, and which become an integral part of style.

To the student specialising in architecture it is the same as the study of the classical languages as a basis for general culture, whose value, in spite of recent controversies, I must believe will always exist. It is the same as the study of Roman law to the student of jurisprudence, or as that of ancient history to the student of modern history and sociology.

It is not necessary in any meeting of architects to insist upon the importance of planning, and in this branch of his work the architect is called upon to exercise considerable constructive thought. It is planning essentially that differentiates our buildings from those of other times and other needs, and from the growth of necessities in planning something is to be hoped for in the development of architecture.

Certain types of plan are still more or less traditional—that, for instance, of places of public worship—though even here one sees no reason why some modern type might not be evolved which might appeal to religious instincts as much as the old. A Vanbrugh or Talman palace still serves to-day, and many prefer to live in old houses of less architectural dignity for the sake of family tradition or artistic charm. But they would generally require something different if they set about planning a new house. The requirements as to light, air, and sunshine are more exacting to-day, because our life as a nation is spent more indoors, and because, Nature's advantages being scarcer than of old in towns, they are the more sought after for commercial, industrial, educational, or sanitary reasons.

I am inclined to think that modern requirements in planning are as much as anything responsible for the chaotic state into which building, not only in this country, has fallen. Either attempts to reconcile a modern plan with traditional design have too often ended in fiasco, because externals rather than principles were aimed at, or style ceased to be a desideratum, and the plan has been expressed by mere construction lacking imagination or æsthetic sense.

The study and dissection of really fine planning, of its treatment as an architectural entity, and of its growth from the ground upwards, will give a mastery over the principles to be aimed at in the development of bald walls and supports, and stimulate the imaginative faculty by which internal and external effects, vistas, and proportions present themselves as inseparable from the plan lines. We shall all agree about the fascination of a beautiful plan, and that a satisfactory plan usually gives a satisfactory superstructure, while an unskilful and thoughtless plan probably results in an unskilful and thoughtless building.

In the study of old work from the point of view of the builder as distinct from that of the historian or archæologist there is, to my mind, an important quality which may be cultivated, not generally dealt with in treatises, and there is a classification to make which is not noted in the text-books. I refer to a feeling for the appropriate in architecture, and to the study of methods by which appropriateness has been obtained by past builders.

Buildings may be of two classes with infinite combinations between the two extreme types. On the one hand you may have that whose purpose demands monumental treatment, with all that it implies; on the other that whose purpose requires that beauty in design must be obtained in quite other ways than those which we usually associate with monumental work. Straightforward and honest building is common to the two, but the one may entirely stop at that; the other soars to whatever heights of imagination its author's ability and the means at his disposal will lead.

It is quite natural and proper that a student should base his education upon the highest type of work that he can find, and if he has done his duty to himself he will be familiar with the best work of every age, and will be prepared by his education to undertake work of the highest kind. If he is fortunate enough to get such work to carry out, his training will stand him in good stead. But many do not get such opportunities. Have these made a real study of the methods by which past builders have obtained their effects in the less ambitious efforts with which our own and other countries are filled, beautiful examples in their own way of simple, unaffected work of the country? With a knowledge of these methods and the application of individual thought and experiment the work might be picked up again and carried on, and much of the awfulness of modern buildings might be banished. I have reason occasionally to pass through a certain suburb built upon what was once as beautiful a hillside as you could find. It has been covered by one who, I am told, calls himself an architect with villas which I dare not attempt to describe, but they are such as create physical nausea, and such as one may unfortunately come across on the outskirts of too many English towns. There is no excuse for such crimes against nature and man, and there is no remedy but training. I believe that there is hardly any building that in spite of adverse conditions of all kinds may not, with little or no more expenditure of money, though there may be of thought, be made more dignified and more conducive to healthy living and thinking. We have seen buildings in desolate streets, without even the luxury of the stone window and door-heads that every grimy and monotonous house in the street possesses, made noticeable pieces of architecture, not only in contrast to their surroundings, but evidently and intrinsically beautiful by the simple arrangement of voids and solids in common brick, and the pitch of the roof and the projection of the eaves.

There has been much talk about simplicity of late, and one fears that some who talk most of it will be first to repudiate it when the pendulum of fashion swings in the other direction. It must be fascinating, as Mr. Dooley hints, to be a simple millionaire, and no doubt simple spoons of gold are pleasanter to a man of taste than ornate silver ones, and halls lined with the glow of simple marble than with the most rococo plaster.

But what I would insist upon is that we must divest our minds of all cant and shibboleths. We honour as one of the greatest virtues real restraint and true and appropriate simplicity, not affectation of it; and cottagy palaces or pretentious cottages are equally abhorrent to taste. Yet can we say that they are uncommon?

A cathedral or a great town church may be filled with the fullest beauty of detail and richness of material and colour proper to a centre of (we hope) pious wealth, and to a great congregation with the attendant facilities for fine ritual; but all these are out of place in a church embowered in trees and surrounded by clustering cottages and quiet meadows. How strange many of the great Norfolk churches appear, little cathedrals left among the crumbling ruins of once prosperous towns; and how incongruous it would be to set about building them now! The architect must have this feeling for appropriateness; he must have sympathy with the objects for which, and the surroundings in which, he is working. He should therefore not only apply himself to the acquisition of knowledge which will form a background in his mind when designing greater works, he must also store his mind by observation which will enable him to deal with many and many a case in which good detail, as it is called (and which recent generations were, I think, inclined to identify too completely with good architecture), must be a matter of absolutely no account, and that the simplest means may, with thought, produce the most appropriate, or the only possible, effects —the most appropriate even when there may be means at his disposal to do more, the only possible effects when those means are lacking.

The principles upon which such effects depend may be studied in many old buildings, ecclesiastical, municipal, or domestic. Of the last class what more beautiful series could you have than your own Yorkshire cottages? or—and you will pardon my preference for the gentler and more winning modes of the Midlands—than the houses of the Cotswolds? The rather larger hall or manor-house exhibits the same straightforward planning and building as does the cottage; the same grouping of roofs and gables and chimneys, arising almost inevitably from the plan and explaining its arrangement at a glance; and no student could do better than to analyse the principles that dictated their designing and the methods by which so admirable an effect is obtained from so simple materials.

Composition and grouping are of essential importance where a building stands detached from others, and doubly so where beauty of materials and workmanship cannot be called in to assist. Its value as an architectural work will, indeed, depend solely upon these qualities.

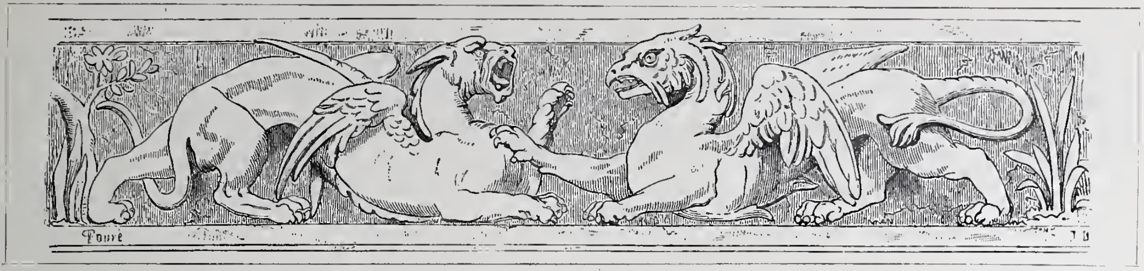
It always seems to me that the possibilities of your own and similar country are of the greatest, since the levels of your hillsides and valleys present considerable difficulties to the architect, and difficulties thoughtfully solved are usually the making of a building. No two sites are exactly alike, and as the requirements of two clients or two buildings are seldom alike, there is every chance for individuality of treatment. If the mind is trained and the eye quick to notice how in this case or that—say in Yorkshire, or Gloucester, or Devon, or among the Jura or Pyrenean or Apennine villages, or in such towns as Laon, or Mont St. Michel, or Vezelay, buildings may group on hillsides, or with water or among trees—how lower buildings may be used to buttress higher, and the whole form harmonious lines and tones with the surroundings—then mind and eye will also be quick to catch the grouping and arrangement and tones which will least interfere with Nature's own dispositions and plan, grouping and design being worked together, nothing will be wasted; outbuildings, even for such menial purposes as cleaning of boots or storing of coal and wood, washing of clothes or potting of plants—not to mention farmsteads or stables—may all be used in their humble way instead of being scattered and outcast, or huddled round a stuffy hidden yard.

Take many of the almshouses scattered over England and note how charming many of them are in grouping, and yet how simple in plan and in design; made out of local materials, with perhaps one spot of decoration in a coat of arms exactly at the right point to focus the building. Here may be broad shadowy eaves and a simple gate and steps, and direct quiet path up to the broad low door. It may be that that door with the coat above it attracts generations of artists. Anyone might be proud to have designed it, and yet, probably, no more money has gone on it, except for that one point of decoration, than if the pitch of the roof had been bad, the shadow of the eaves less, the door seven feet by three, or the windows of a less beautiful proportion than they are. Why cannot we oftener study the design and proportions of a door or a window and arrive at our own idea of what it is that gives them beauty? It must be there if we will only think about it; and, once discovered, one could never again perpetrate the old thoughtless trade monstrosities. So working upwards throughout the processes of building we should arrive at ideals which must be worth something because they are the product of cultivated taste and thought based upon the principles of beauty, which are best studied from good work of the past, and which apply to the humblest features; but if by hard thinking we can arrive at a fresh set of principles unknown before, giving a new and convincing ideal of beauty, so much the better for us and the world. Only is it not wise to know what has already been done, and not waste years in inventing and perfecting a patent which has been registered perhaps two thousand years ago?

I have rather laid stress upon design in architecture of an unassuming kind because the student is naturally busy with more ambitious things, and is apt to overlook the importance of preparation for the more unostentatious work which is by no means easy to do well, and is so important in every-day life, where there is no scope for mouldings and columns and pinnacles and crockets, but where individual treatment in composition and in the use of broad surfaces, light and shadow, and refined proportion of the whole and its parts, should reveal careful study and a trained taste. As the greater includes the less, so the pursuit of the highest side of the subject will include the same principles of design as will be needed in the sort of work we refer to; but I think that the faculty for composition and harmony with nature is rather apart from the ordinary routine of studentship. Before we turned tradition out of doors such work was done by travelling masons. Surely we should all of us be able, in spite of the restrictions of to-day, to rise so far. Indeed I am sure that any indictment on this score falls with less justice on our profession than it did ten or twenty years ago, and conditions point, I believe, most hopefully to the future.

Perhaps another ten or twenty years will find us with greater control over modern constructional methods. We have found new developments, notably in steel, but we have not yet turned our training and thoughts with success to its possibilities as an architectural medium. We have to hide it up and case it in with materials with which we think we know how to deal, and, indeed, until we can discover some material with the qualities of steel, but which may be trusted under all conditions, our conquests in this direction seem likely to be confined to the domain of science so far as our general building operations are concerned. The designs for the Grissell Medal of this year show some result from directing attention to the subject; but whatever progress may be made, and whatever beauty can be got out of a building constructed entirely in steel, one feels that we shall be still dependent upon the same old principles, and that knowledge and training will be just as essential to success in design as before.

I hope that I have not been labouring platitudes and truisms—one is apt to fall into them—and it is quite certain that there will be very little new in these stray remarks to those who have thought about these subjects at all. As I said at the beginning, I have been largely forestalled, and it was impossible to cut out everything and start the subject afresh.



DESIGNING FOR MOSAICS AND STAINED GLASS.

By J. Eadie Reid.

Read before the Northern Architectural Association, 31st January 1905.

I DO not propose, in dealing with the subject set for this evening, to enter into any long historical account of the two sections of decorative art, further than perhaps in passing to touch upon periods which may help me to make my meaning clear. I sometimes feel that it is a little misleading to speak of designing for one material and designing for another, as if there were various ways of designing—different means of arriving at the goal. Every artist, I am confident, will agree with me that there is only one way, and that through the narrow portals of invention. That, without doubt, is the first and great essential.

By using the word "invention" I mean that you must be able not only to see your subject as it presents itself to your mind's eye, but by some curious and subtle process you must have the power to arrange that the actors in your subject shall adapt themselves to the exigences of the space which is to be decorated. It may be round or square, regular or irregular, but there must be no feeling of a picture which has had pieces cut out of it to fill the space. The grouping of the composition must look unconscious, without the slightest hint of posing or extravagance of attitude. At the same time the whole machinery of design must be hidden away, so that while line and colour adapt themselves to the peculiar shape of the panel, yet ease, simplicity, and directness combined is the aim of the artist. That, in short, is design, whether the scheme is for figure or ornament.

There is another side to the "making" of designs—a tendency to allow the subject to come from the tip of the pencil rather than from the brain, with the result that "mannerism" is achieved. Certain attitudes, sitting or standing, tricks in reproducing drapery, repetition in the placing of hands and heads, unconsciously reproduce themselves, and occur over and over again with dangerous facility, unless we are ever on the watch. In fact, if you find your design comes easily at first, eye it suspiciously, and test it in every conceivable way until it proves itself sound and good. It is so easy to turn out graceful curves and twists, especially to-day when so much licence is given to an erratic growth.

Mannerism is often confounded with style—that is, the way that an artist does a thing, and which is a part of himself. No two men can put on to glass or paint on canvas the same object treated in exactly the same way. The very nature of our being renders this impossible. Consequently technique in art is as diverse as handwriting, even when we have purposely set ourselves to follow the work of some master, *i.e.* apart from mere copying. The great and golden rule which will help us to steer clear of mannerism—the dangers of unconscious trickery in drawing or painting—is to study, draw, and observe always.

Now by this I do not advise mere sketching, which, I believe, is often a useful way of forgetting. There are certain things in nature which can *not* be sketched; they must be studied and stored up in the memory. A hasty sketch often blurs the clearness of your perception at the time, but if you draw it afterwards from memory you will be amazed to find how mere hard looking has helped you, and how well the details are remembered. It is not always possible to stop and draw everything which appeals to you—some detail of ornament, some delicate harmony of colour, or valuable grouping of figures. It is therefore necessary to cultivate drawing from memory, otherwise much that is invaluable to your practice will be lost. When you *can* stop and draw, do so; but I would advise you to *draw*, not to sketch. If there is a difficult bit, analyse it and keep at it until you have thoroughly mastered every detail. For instance, take a piece of stationary drapery, make a hasty sketch, and then try and use it in your cartoon or painting; you will find you have missed just the useful part. On the other hand draw it in such a way that you have exhausted all its resources, studied every groove, cast, shadow, and reflection, and when you turn again to your cartoon the work is more easy for you, and you are able to adopt and simplify almost without reference to your study. The Japanese artist will sit for a whole day looking and studying without touching pencil or paper. Of course I know that there is no law. The method of one designer—as we have already noted—is not the method of another, and after the rudiments of technique, the handling of pencil and colour, have been acquired, you must find out the rest for yourselves. There is no recipe for designing. You may know every line of "historic ornament," and yet be unable to evolve the simplest pattern.

It is just possible to draw too much and look too little, and in so doing we lean upon "convention," which is supposed to point to an easy way out of our difficulties, so much so that design and convention are popularly supposed to be twin sisters. We hear of a conventional rose, a conventional figure, which generally means that neither object recalls what it is intended to represent; as far as nature study is concerned, they are first cousins to the weird forms with which we adorned the margins of our school books. The lines are more pleasing and resolve themselves into agreeable forms such as we find in the latest fashion of ornamental design. Nevertheless convention has done loyal service, and by putting the best construction on the word we find that the ill-used term really stands in the relation to design that impressionism takes in painting. Where the latter deals with the mysteries of atmosphere, the former embodies the recollection of a given form which is influenced by the chisel or brush, by the more or less playful treatment of the material in which we work. It is wrong convention when we attempt to reproduce in a less congenial method. What can easily be rendered with one pat of the brush is infinite labour with the etching needle, and *vice versa*.

The laws of design, however, are as unchangeable as those of the Medes and Persians. It is not until we have fixed our ideas, invented our scheme, that we can begin to adapt it to our materials of glass, pigment, or carving. This may sound heretical, but in truth it is the only way to arrive at success. The knowledge of the medium which you begin to bring upon the design when once conceived is a thing by itself, and no unimportant factor. Half the ingenious designs which are drawn every year are lost to the world for want of actual knowledge of the methods they are presumably designed for. Your message may be an important one, but surely if you wish it to be told you must learn the language. There is a false confidence, a belief that the workman will put it right, which often ends in disaster. Again, in the desire for originality of eccentric form, the idea is overlooked in the effort to astonish. The antidote to this is to be found in the study of the early præ-Raphaelite masters. In Giotto, for example, the first thing that strikes you is the quiet dignity, the forceful, unstrained simplicity with which the story is told; no extraneous additions to divert the eye or mind from the principal action. Every movement of the assisting figures is a note in the phrase.

The secret lies in the sincerity of the designer, who kept himself in the background while he endeavoured to realise the scene as he imagined it took place. The day of art for art's sake has not yet arrived, although the sense of beauty in nature makes itself evident, and stamps the work with the hall mark of individuality. Take, for instance, the preaching of St. Francis before Pope Honorius, a composition of figures seated in a semicircle, the Pope occupying the centre. You cannot mistake the intention—the preacher and the listener; yet at the same time there is no sacrifice of interest in the minor actors, no attempt by means of light and shade to force St. Francis into prominence, or to send the cardinals into a gloom of obscurity. Or, again, that most dramatic fresco in monochrome where the praying saint brings water from the rock, while the thirsty peasant guide bends over the stream. Vasari waxes eloquent in his admiration of the simple action which he avers was attempted for the first time in art. The side-play of the astonished monks emphasises the directness of the story-telling.

I have chosen these two because the figures of monks, cardinals, pope, and peasant were actual people of the artist's day, and presented no difficulties of costume or model. The same may be said of scriptural subjects. The mystery play was a common event, and the artist had but to represent the scene as it had presented itself to his gaze on the last great festival day. His audience criticised it not from the standpoint of archæology or topography, but from its likeness to what they were all familiar with. What may amuse us to-day in anachronism of costume and country never troubled the painter or his admirers; the story was the thing. If the subject was to be rendered in glass or mosaic it owed in a great measure its quaintness of form to difficulties of cutting and glazing or the laying of tesseræ; but still, above all, where the interest lay there the attention was directed. Glass was precious, and if the hot iron slipped in cutting, or the piece broke in the attempt to achieve some strange shape, in it went with another lead through head or hand, sometimes with happy result; but we feel that the artist was not thinking so much of his material as intent upon the simplest and most direct way of realising it. Again, if his brush in tracing the folds of the drapery adopted a certain mannerism, it had the saving merit of being peculiar to the technique of the glass painter. There is no doubt that much of the bad drawing in ancient glass arose, not because the original designer drew it so, but because the glazier often misinterpreted him, much as he does to-day if you leave him to himself.

Now as Giotto drew and painted as well as he knew how, and better than Cimabue, opening the way to the magnificent creations of Michelangelo and Raphael, so would I plead for the designer of to-day. We have seen that these men designed with all their knowledge and with their own characteristic style. They never designed tapestry or fresco in the manner of Albert Dürer, or painted minutely like Van Eyck, although they knew and appreciated their work. When they borrowed compositions wholesale, as we know they did from their predecessors, they made them their own. It has been left to the twentieth-century client to ask for such things from the designer, the result being that we pull down our grammars of ornament and hunt out our photographs, so that fifteenth, tenth, or twelfth century details of drapery and so on may be reproduced. Or if the demand is made in a lighter mood we must perforce dance to the tunes of the Louis' or walk in the stately ways of the Renaissance.

Now while it is just possible to masquerade successfully in these various styles, yet surely you are missing the best part of the artist himself. If you commission a painter of pictures you would not venture to ask him to paint his landscape like Corot or your portrait in the manner of Sargent. So with the designer; he may force his way through the thicket of ages, but in so doing he suffers materially, and only the rags of his individuality remain. Some years ago when painting the apse of a church in the West of England, a well-known architect came to place a commission in my hands. All the preliminaries from the business point of view were discussed and satisfactorily arranged, and then a large roll of drawings was produced by my client. When they were opened before us I looked at them with no small consternation. "Of course," I said, "these are merely your suggestions for the subjects?" "No," he replied. "That is how I wish the figures to be drawn. I have studied church decorations, and have come to the conclusion that this is the only way in which they can be done." "But," I pointed out, "look at the faces, the hands, the draperies. I could not paint those things." And I didn't. Again, I have been asked to draw angels like Pugin! How can I? The very fact that years have been spent in drawing the figure and analysing drapery is sufficient reason why it is impossible to draw in that manner. I should never succeed, and if I attempted to do so the result would not be sincere.

The essential part of an artist's education is the study of the great masters' works, and by so doing he avoids dangers which would otherwise assail him. He sees demonstrated before him some of the great problems of his art both in composition and colour. The experience gained is laid by and made use of in his future work. He learns to avoid the staginess of the later men, and to appreciate the quiet dignity of the earlier. The drawing of Michelangelo will set a standard, and the colouring of Titian will inspire him. Rembrandt will initiate him into the mysteries of shadow, while Velasquez tells the secrets of craftsmanship.

Having insisted upon the first stages of design—the conception—we may now deal with the execution. You have decided upon your scheme and arrangement. It will now be necessary to make drawings from the life and from drapery before you begin to work upon the full-sized cartoon. The finish of the cartoon must depend upon the conditions under which the finished work is to be done. In stained glass, for instance, if you are to paint the glass itself, it will only be necessary to design the leads and general forms for your own guidance, as you will naturally work the hands and heads from the original studies. On the other hand, if the cartoon is to be translated by the glass painter then you must show everything and finish carefully. As in the mosaic cartoons, nothing must be left to chance.

In designing lead lines I frankly accept them as the boundaries of my forms and as a means of gaining variety of colour. Cross leads breaking through the forms are necessary to give strength to the window and also to enable the cutter to do his work easily. It is not impossible with the diamond to cut strange and weird shapes, but it is not advisable. Your sin will find you out, and the broken glass will always be a record against you. The object of the bars is of course to divide the weight and simplify the fixing. If you put the whole window in one piece it would sooner or later begin to settle downwards and bulge outwards. It is best to recognise your leads from the outset. If you make a delicate monochrome or chalk drawing it takes some courage to plough into it with thick black lines; but really what may look brutal in your drawing does not appear so in the finished window. The light eats away on either side, so that in many cases it is lost, and by using different thicknesses you can play with advantage.

In the mosaic windows—as they are styled—full strong colouring can be used, and it is amazing how little painting is required to express your intention. The "flash" of course must be painted, but in due relation to the height—bold and vigorous at a height, and more delicate as it comes near the eye. The glass at Cresford—near Wrexham—of the fourteenth century has many small figures, but the details are vigorously painted and nothing is lost. Fairford is painted more delicately, but still shows with clearness every form adapted to its position in aisle and clerestory. The different terms "painted glass" and "stained glass" can be explained by the fact that "stained glass" means pot metal—that is, the colour is in the glass itself—while "painted glass" may be white glass painted upon by means of differently coloured enamels and stains. The most commonly used are the silver stains, which run from a pale yellow to a deep orange colour. In a window of this class the leads do not follow the colours so closely, and the pieces of glass are much larger ; consequently the work is dependent entirely upon the painter.

But colour, to my mind, is the goal—light and shade are out of place. The art of the illuminated missal is the original model for the window maker, as it was that of the fresco painter, with the additional glory of light which no pigment can ever give. To the colourist no branch of his art can give such pleasure. It is a revelling in combinations and harmonies beyond the reach of the painter. Compare the coloured design submitted to you with the completed work! There is a danger in the sketch to suggest more than the window is capable of—a pictorial realistic feeling which captivates the donor and often ends in disappointment. The highly finished dainty drawing usually submitted with leads omitted, or at the most suggested, and bars ignored, bears little relation to the actual finished work. There is one thing which ought to be remembered in looking at sketches for large decorations: the man who is accustomed to making cartoons on a large scale cannot with ease tune himself to the dainty miniatures which are expected of him by his clients. Another thing to be remembered : what may look all right on a small scale is often all wrong on a large, and immediately you begin to enlarge your suggestion you find how exacting it becomes. If your vision is clear, and you are sure of your ground, my advice is, Design it full size. Of course I know there are many difficulties in this, apart from the art side.

Mosaic presents other difficulties which are purely technical. In preparing the first sketch I see no reason for making little squares all over the drawing ; they are of no value, and if you were to reduce the completed mosaic you would scarcely see them. The best way to design the large cartoon is to keep your forms large and think more or less in tesseræ. To do this you must work yourself with glass, chisel, and cement to realise how difficult the process is, and also how much in the dark you are as to the result. You must work in faith with a clear impression of the end. Aim at something more than you can do. Mosaic as a rule is usually at some height, and the colouring must be achieved accordingly. The tesseræ available are not very brilliant in themselves, and to use differently coloured gold cubes would become tinselly and gaudy. The best effects are obtained by simple means. Supposing you wish a purple. If you have one already made for you, and put it into position, the result is disappointment; but if you take red, blue and white, and put them side by side, you will find the colour you want fused and mixed in the eye. So on with other shades ; place what are called the primary colours side by side—green, blue and yellow, orange, red and yellow, brown, black and red, and many other modifications which will suggest themselves as you work. The art is a decorative one, and although there is no limit to the pictorial side, that is not the end. The wonderful copies of Raphael and others to be seen over the altars in St. Peter's, Rome, are the last word in mosaic. As specimens of imitative work they have set a standard in the minds of the travelling public, so much so that if you mention mosaic you are universally asked if you have seen those in St. Peter's. They never mention Ravenna in the same breath, or think of St. Mark's as being the same material! Still, as works which will remain after the original canvases have disappeared, they are valuable ; but, as I have already stated, imitation is not the end of mosaic, but points to a decadence as real as that of the Greek period. "Pliny's doves" in the Capitol are equally wonderful, but they are a *tour de force* and not a precedent. The Pompeian mosaics were intended for the rich man's floor ; but when Christianity pressed the art into its service the walls were considered the more dignified position for figure subjects—imperishable representations. Art was at its lowest, as the crudeness of the drawing bears witness ; but, nevertheless, there is dignity and reserve in the treatment—a due recognition of the material.

The lesson we learn from a study of the mosaics in Venice or Ravenna is principally this : we ought not to compose groups of animated figures, the composition must be architectural, all movement must be slow and monumental, there must be no hurry. The procession at Ravenna moves solemnly from west to east. The Majesty in the dome of St. Mark's raises His hand with great dignity. Angels hover with upraised wings. Apostles stand in rapt attention to hear the words which He utters. So in the Crucifixion. The sacred tragedy moves through the events with slow dignity, nothing unseemly, no violent gesture. We feel this more strongly when we turn from the east to the west, and look at the fresco-like designs of Titian and his followers—crowded groups full of movement encroaching upon the art of painting in which the subtle gesture, the flutter of drapery, the movement of limb and foliage, can be rendered.

Now I fear that, after all, I have not shown or told you much how to design; but if I have succeeded in encouraging any of you who have found difficulty in expressing yourselves, it will be sufficient. I would only repeat, to be able to design you must be able to draw, and the only way to perfect your drawing is to keep on drawing. At the same time you must acquire, not merely superficial knowledge of the material you are designing, but you must endeavour to gain a practical knowledge; but neither practical knowledge nor drawing will make you a designer if you have not already got design in you. I have seen men produce beautiful studies from the life, and yet they have submitted the most awful compositions when they were thrown upon themselves. If I have insisted upon studying the works of past masters in art it is because I reverence their work—and no one has studied them more earnestly—and I trust that as my experiences increase I shall be better able to realise their full meaning and significance; but I hope that I have made it clear that the study of the old masters is not everything.

If an artist has the sense of design and the ability to execute, there is no reason why he should endeavour to emulate, no matter how skilfully, the works of past ages. The mission of the artist is to see, not only the things around him, but to render with all the knowledge and skill which have been given to him the imaginings of his brain; in short, all that is embodied in the word "design." If these things are hot within him, if he feels them so strongly that outside influences do not affect him, he must perforce put them down upon paper or canvas imbued with his own individuality and in his own peculiar style. There will be no halting to think how Giotto would have done it, or how Titian would have coloured. He will see with his own eyes, paint as he feels until he has realised the mental images, colour, and treatment in sympathy. This does not merely apply to painting alone, but is the essence of all art, be it glass or mosaic. When once the knowledge of the material has been acquired it is simply a recognition of the limits and courage to cut down details. The artist will be governed by the lead or the tessera, and there will be no emulation of the miniature painter. In stained glass the wealth and richness of colour will appeal to him, the value and quality of light will suggest and tempt him on to new combinations and harmonies, until we are again in a position to rival the great masters who have left us such perfect models of windows. It is not lack of fine glass or want of workmanship—you can get both. It is rather the danger of imitating certain periods of glass design, and, I might add, not the best periods; a timidity in designing a window which does not look like another stained-glass window; and a fear of colour, while glass and yellow stain with a touch of ruby and a point of blue seems to be as much as the modern will allow himself. It is not so in domestic glass; why should it be so in church? Have we forgotten the glass in the Duomo of Florence, the windows in St. Francis of Assisi, not to mention scores of others, both at home and abroad? The subject opens out many roads to discussion and variance of opinions. I can only speak as a humble worker, Design and Colour being my motto.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS 1834
INCORP. 1837 1887

9, Conduit Street, London, W., *26th Aug.* 1905.

CHRONICLE.

The late Alfred Waterhouse, R.A., *Past President.*

It is with sincere regret that we have to record that the illness from which Mr. Alfred Waterhouse had so long suffered took a fatal turn last week, and he passed away at his residence at Yattendon, Berks, on Tuesday, the 22nd inst., aged seventy-five years. The event will have caused feelings of the deepest sorrow and regret, not only among his friends and colleagues, but among all who have had the privilege of association with him in the varied concerns of his distinguished career. Few architects, it may truly be said, had won so fully and deservedly the esteem, the confidence, and the admiration, alike of the public as of the profession. The Institute, whose affairs he guided with such marked distinction during his term as President, loses in him a staunch supporter, a firm and constant friend, ever concerned for its advancement, its honourable status, and its practical efficiency. Mr. Waterhouse's professional career and architectural work will be fully dealt with in the Memoir to appear in a later issue of this Journal. For the moment the main facts of his long and intimate connection with the Institute need only be briefly recalled. He was elected a Fellow in 1861, was awarded the Royal Gold Medal for Architecture in 1878, served a few years as Vice President, and occupied the Presidential Chair during the three years 1888–1891. He presided over the deliberations of the Institute which resulted in the adoption of the present system of Progressive Examination; and subsequently, after the resignation of the late Mr. Arthur Cates, held for some years the position of Chairman of the Board of Examiners. His contributions to the Transactions, besides his very able Presidential Addresses, include Papers on the Manchester Assize Courts (1864–65) and on the Town Hall at Manchester (1876–77). His portrait, a striking work by Mr. W. Q. Orchardson, R.A., is one of the finest and most precious in the Institute collection. A photographic portrait taken during his presidency appears as a frontispiece to the volume of Transactions 1890–91.

Visit to Newcastle and Annual Dinner.

Arrangements are in progress for the Institute visit to Newcastle-on-Tyne, where the Annual Dinner is to be held on Friday, the 13th October, under the auspices of the Northern Architectural Association. The following is a brief preliminary programme:—

Thursday, 12th October:—9 till 11 p.m.: Northern Architectural Association President's "At Home."

Friday, 13th October:—9.30 a.m.: Excursion on the Tyne in the steamer *J. C. Stevenson*, kindly placed at the disposal of members by the Tyne Improvement Commissioners. 1.30 p.m.: Invitation Luncheon. Visits to places of interest in the city. 8 p.m.: R.I.B.A. Annual Dinner at the Assembly Rooms, Westgate Road.

Saturday, 14th October: — Excursions to Hexham or Durham, under the guidance of local members. A special visit has been arranged to Durham Cathedral.

Members of the Institute desiring to be of the visiting party, or to be present at the Annual Dinner, are urged to communicate with the Secretary at as early a date as possible.

The Intermediate Examination and A. A. Students.

The Council of the Institute, on the recommendation of the Board of Examiners, have resolved that the drawings prepared in the Architectural Association Day School may be submitted to the Board of Examiners for admission to the Intermediate Examination in lieu of the Testimonies of Study as required by the conditions laid down in the Institute programme, and if the work is found satisfactory the candidate may be admitted to the Examination.

The Council is shortly to confer with the Architectural Association as to the possibility of exempting from the Intermediate Examination students who have completed the four years' course in the Architectural Association School.

The Hague "Palace of Peace" International Competition.

The programme of the competition for the architectural plan of the Peace Palace and Library for the use of the Permanent Court of Arbitration at the Hague is to hand from the Board of Directors of the Carnegie Foundation. The building is to cost 1,600,000 guilders (roughly £133,000). The document, presumably a foreigner's rendering in English of a French original, is as follows:—

> Article 1.—The competition is open to architects of all nations. The Board of Directors of the Carnegie Foundation, however, intends to invite specially some of them to compete.
>
> Article 2.—Competitors have to take care that within seven months after the date of issue of the present programme, as expressed thereon, the following will be in the possession of the Board of Directors of the Carnegie Foundation at The Hague:

a. A plan, showing the situation of the building with its surroundings; scale 1 : 500.

b. The ground-plans of the different floors; scale 1 : 200.

c. The drawings of the four façades; scale 1 : 100.

d. Two vertical sections showing: the main staircase, both the large and the small court of justice and the library (that part of the building where the books are stored); scale 1 : 100.

e. The middle portion (travée) of the front façade with section; scale 1 : 50.

f. A portion (travée) of the interior of the large court of justice; scale 1 : 50.

g. A drawing of the main staircase; scale 1 : 50.

h. A drawing, giving a perspective view of the building and its surroundings.

The view is to be taken from the point marked 0 in the plan of the site which is joined to this programme.* This view shall be drawn on a sheet of paper, long 0·80 M. high 0·60 m. These drawings must clearly show the distribution of the building in all its details.

The destination of the rooms must be clearly written in the ground-plans in the French language; reference to an indicating list is not allowed.

The drawing of the front façade and the perspective view must be executed in colours; all the other drawings in black lines.

No plastering is allowed on the façades.

Article 3.—Together with the plans a short explanatory notice, quite legibly written in the French language, must be sent in, and, in order to render possible correspondence with the author of the plan without knowing his name, a closed and sealed letter mentioning his name, and bearing on the outside an address and an epigraph, which epigraph shall also figure on the drawings, on the explanatory notice and the package.

Article 4.—The packages, containing the above-named plans and papers, that have not arrived at The Hague within seven months after the issue of this programme, will not be opened; and remain at the disposal of the sender.

Article 5.—If the author of any plan should fail to comply with one or more of the provisions of this present programme, his plan shall be excluded from the competition.

Article 6.—The letters, containing the names of competitors to whom a prize has been awarded, will be opened by the jury.

Article 7.—The jury is composed as follows:—

The Chairman of the Board of Directors of the Carnegie Foundation.
Mr. Th. E. Collcutt, London.
Dr. P. I. H. Cuypers, Roermond.
Geh. Ober-Hof-Baurat Ihne, Berlin.
Professor K. König, Vienna.
M. Nénot, Member of the Institut de France, Paris.
Professor W. R. Ware, Milton, Massachusetts.

Article 8.—By accepting their commission the members of the jury declare to agree fully with all provisions of this present programme and to renounce entirely to compete.

Article 9.—The jury give the preference to those projects that answer best to the requirements of this programme and excel from the point of view of art and construction.

The following prizes will be awarded:—

A prize of 12,000 guilders.
A prize of 9,000 guilders.
A prize of 7,000 guilders.
A prize of 5,000 guilders.
Two prizes of 3,000 guilders.

Article 10.—After the publication of the decision of the Jury, all the plans sent in shall be publicly exhibited at the Hague during a month. The official report of the Jury shall also be published and deposited for inspection at the Exhibition.

Article 11.—Competitors may apply for information to Mr. D. E. C. Knuttel, architect at The Hague, No. 16 Fluweelen Burgwal.

Article 12.—The projects to which a prize is awarded become the property of the Carnegie Foundation.

If the execution of a project to which a prize is awarded be entrusted to the author thereof, the amount of the prize will be deducted from his honorary.

Article 13.—The building will be erected as much as possible at the place indicated by cross-hatching on the plan of the site annexed to this programme.

Article 14.—The Peace Palace shall contain the following parts:—

A. COURT HOUSE.

Basement Story.

1. Dwelling of the concierge, containing four rooms and kitchen, &c., directly accessible from the Park, and communicating with the different stories by a servants' staircase (*escalier de service*).
2. Two spare rooms, sufficiently light, and communicating with each other.
3. A place for the calorifères with fuel-store.
4. A room for the stenographers.

Further, as far as the available space and the construction will allow, wardrobes, lavatories, &c., servants' rooms, waiting-rooms, and store-rooms.

Principal Story.

The floor of the principal story must not be more than 2·50 M. above the exterior ground.

1. Great hall with main staircase.
2. Staircase leading to the basement story.
3. Doorkeeper's room.
4. Large Court of Justice, 280 to 300 M^2.
   With or without an anteroom, with a removable podium, and a gallery either along a side wall or at the end.
5. Small Court of Justice, 140 to 150 M^2.
6. Adjoining each Court of Justice a council room, each 40 to 45 M^2.
   With waiting-room, wardrobe, lavatory, &c.
   (If the council rooms are close together, one waiting-room, lavatory and wardrobe for both will be sufficient.)
7. Two rooms for the parties in the case, each 40 to 45 M^2.
8. A chancery room, 40 to 45 M^2.
   With a vaulted safe (2 × 2 M.) and booklift to the upper story.
   Messengers' rooms, wardrobes, lavatories, &c.
   The council rooms shall have each a separate or together one joint exit to the Park, either directly or through the basement story.

Upper Story.

1. A room for the Conseil Administratif of the Permanent Court of Arbitration ± 90 M^2.
   (A council room for 30 to 35 persons around a table.)
   With an ante-room.
   And a president's room, 20 to 25 M^2.
2. A room for the general secretary, 40 to 45 M^2.
   With a waiting-room and lavatory, &c., 15 to 20 M^2.
3. Two secretaries' rooms, each, 25 to 40 M^2.
   With one joint waiting-room and lavatory, &c.
4. Two rooms for clerks, each 20 to 35 M^2.
5. One room, or two communicating rooms, for archives, together ± 80 M^2.
6. Four study rooms, each 20 to 25 M^2.
   Messengers' rooms, wardrobes, lavatories, &c.

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* The plan and photographic views of the site are to be seen at the Institute.

B. LIBRARY.

(The Library must be built so as to form a separate part of the Peace Palace, with its own main entrance from the Park, and an interior communication with the Court House on the principal story.)

BASEMENT STORY.

1. Dwelling of the concierge, containing four rooms and kitchen, &c., directly accessible from the Park, and communicating with the different stories by a servants' staircase (*escalier de service*).
2. Store-rooms and packing rooms.
3. Bookbinders' workshop.
4. Place for the caloriferes with fuel-store.
5. Spare rooms.

PRINCIPAL STORY.

The floor of the principal story must not be more than 2·50 M. above the exterior ground.

1. Doorkeeper's room.
2. The library, where the books are stored, ± 500 M^2. Fireproof (10,000 M. bookshelves in five stories), lighted by windows from at least two opposite sides.
3. Two reading rooms, each ± 60 M^2.
4. Adjoining an office room for the distribution of the books, 40 to 45 M^2.
5. Two rooms for the librarian and sub-librarian, each 40 to 45 M^2.
6. A waiting room, ± 20 M^2.
7. Two rooms for clerks, each ± 25 M^2.
8. A room for geographical maps, ± 60 M^2.
9. A cataloguing room, ± 60 M^2.
   Messengers' rooms, wardrobes, lavatories, &c.

UPPER STORY.

1. A room for the Board of Directors of the Carnegie Foundation, ± 40 M^2.
   With a waiting room, ± 30 M^2.
2. A chancery room, ± 40 M^2.
3. Spare rooms.
   Messengers' rooms, wardrobes, lavatories, &c.

The Board of Directors of the Carnegie Foundation,

The Hague, VAN KARNEBEEK, *Chairman.*
15*th August* 1905. S. VAN CITTERS, *Secretary.*

Fire-Resisting Construction.

The Fire Offices' Committee have issued a revised set of Rules for Standard Fire-Resisting Buildings, not including cotton mills, flax mills, woollen mills, and worsted mills. Rules as to Reinforced Concrete Construction have been included. Buildings to be deemed of Standard Fire-Resisting Construction must conform to the following description :—

HEIGHT AND CUBICAL CONTENTS.

1. Height not to exceed 80 feet, measured from the lowest point of the land level or ground line of the site on which the Building stands to the level of the highest part of the roof.

2. Cubical contents of any one compartment not to exceed 60,000 cubic feet.

N.B.—In computing the cubical contents of a compartment, the floor area, excluding doorway and window recesses, and the actual height from floor to ceiling are to be measured. Due deduction may be made for a sloping roof.

WALLS AND PARTITIONS.

3. Brick, terra cotta, and/or cement concrete composed of broken brick, burnt ballast, furnace slag, clinker, or other similar hard and burnt material.

4. No external area or party wall to be less than 13 inches thick in any part, or if of concrete 20 inches.

N.B.—Stone used externally only as ashlaring or facing, with a backing of brickwork not less than 13 *inches thick, and for dressings, sills, string courses and cornices, allowed.*

5. All internal partitions to be of incombustible material, excepting only office enclosures of hard non-resinous wood with or without glazing.

6. If there is any Building adjoining, the dividing or party wall to extend at least 3 feet above the roof of the Fire-Resisting Building.

FLUES.

7. All flues to be built of brickwork, no part of which towards the interior of the Building is to be less than 9 inches thick, and all furnace flues to be lined with fire-brick throughout for a distance of at least 20 feet from the furnace. No timber or woodwork to rest in or be plugged into the brickwork of any flue.

OPENINGS IN WALLS.

8. The total superficial area of openings in each external or area wall of any story above the ground story not to exceed one-half of the area of the wall (measured as to height from floor to ceiling of the story in which the openings occur). All loop-hole or teagle doors and frames and window frames and sashes to be of iron or other hard metal. All windows above the ground story to be glazed with glass not less than $\frac{1}{4}$-inch thick, in sections not larger than 2 superficial feet, or wired glass, or electro-copper glazing in accordance with the Rules of the Fire Offices' Committee in force when such glazing is provided.

9. Every window or other opening above the ground story opposing (whether directly or diagonally) and within 20 feet of any window, skylight, or glazed or other opening in any other Building (whether such latter window, skylight or opening be protected or not), or overlooking (whether directly or diagonally) and within 20 feet of the roof of any Building to be protected by "fire-proof" shutters or "fire-proof" doors.

FLOORS.

10. Brick arches, terra cotta, fire-clay, or concrete as above described, the floor being in no part less than 6 inches in thickness, and carried on metal joists, girders and columns, or brick walls or piers.

N.B.—Floors of wood not less than 9 *inches thick, ceiled with plaster on metal lathing and with the floor boards laid on the bearers without intervening space allowed.*

11. Wooden flooring laid on concrete allowed provided there is no space between the wood and the concrete. Wooden fillets not exceeding 2 inches deep permitted if bedded flush in the concrete.

12. Scuppers to carry off water the opening of each of which shall not be less in area than 21 superficial inches to be provided in the external walls to each floor above the ground story at intervals of not more than 12 feet.

N.B.—In buildings within the City of London or within the area controlled by the London County Council, scuppers are not essential.

ROOFS.

13. Roofs to be entirely of the incombustible materials as described for floors in Rule 10 except that 4 inches be substituted for 6 inches in thickness.

NOTE.—*Glass not less than* $\frac{1}{4}$ *inch thick in sections not exceeding* 36 *superficial inches, set in iron or other hard metal, and wired glass or electro-copper glazing in* *accordance with the Rules of the Fire Offices' Committee in force when such glazing is provided, shall for the purpose of this Rule be deemed incombustible.*

Outlets on to roofs rendered necessary to satisfy the requirements of the Factories and Workshops Acts permitted, provided that all doors and frames be of iron or cased in iron plate at least ⅛ *of an inch thick, and that they be self-closing.*

Protection of Structural Metal Work.

14. All columns or stanchions to be covered with brickwork or porous terra cotta (at least 2 inches thick), or with cement, concrete, or plaster at least 1½ inches thick, keyed into metal supports and protected by a metal guard up to a height of not less than 4 feet from the floor where cement, concrete or plaster only used.

15. Girders, joists, lintels, and all structural metal work (other than columns and stanchions but including framework of roofs), where not covered with brickwork, to be completely encased in porous terra cotta at least 2 inches thick, securely anchored, or cement, concrete or plaster at least 1 inch thick keyed into metal supports.

16. Space must be left at the ends of girders and joists to permit of expansion.

Linings and Ceilings.

17. No lining of wood or textile fabric, to any part of the walls, partitions, ceilings, or roof.

Floor Openings.

18. No openings through any floors allowed except as follows :—

(*a*) Holes to admit driving shafts, pipes, and iron or earthenware tubes for electric conductors. Shafts to fit closely in metal collars, and all pipes and tubes to be cemented round the full thickness of the floor.

(*b*) Staircases and hoists of which the enclosures are constructed entirely of brick or cement concrete as above described at least 9 inches thick, with a regulation fire-proof door to every opening.

N.B.[1]—*Stairs and landings within said enclosures to be constructed of incombustible material.*

N.B.[2]—*Where the building is within the City of London or in the area controlled by the London County Council, hardwood doors to openings may be allowed instead of fire-proof Doors.*

N.B.[3]—*Where the staircases and hoists extend to the top floors they must have a glass roof protected externally with strong wire-work, and the enclosing walls must be carried through and* 18 *inches above the roof of the building.*

In factories and workshops in the area controlled by the London County Council a glass roof protected as above is only to be provided in cases where the enclosing walls and staircases are carried through and 18 *inches above the roof of the Building, and also above the roof of the adjoining premises. Otherwise the roof must comply with the requirements of the London County Council.*

(*c*) Belting and rope races enclosed as for staircases and hoists.

Shafting through Walls.

19. Shafting where passing through walls to fit closely into wall, or have wall boxes closed with iron plates not less than ¼ inch thick, leaving no open space.

Pipes and Electric Conductors.

20. All pipes in the Building, except water pipes not exceeding 1½ inches in diameter, to be of hard metal. No wooden casing to be used for enclosing electric conductors.

Communicating Compartments.

21. Two or more compartments, each constructed in accordance with these Rules, may communicate whether by double fire-proof doors or otherwise, provided that their aggregate cubical contents do not exceed 60,000 cubic feet.

22. Two or more such compartments, whose aggregate cubical contents exceed 60,000 cubic feet, can only be allowed to communicate across a fire-proof compartment, built up from the basement with walls of solid brickwork, and constructed in all other respects in accordance with these Rules so far as the same are applicable, and having all openings protected by fire-proof doors at least 6 feet apart.

23. Except as above no communication allowed between a compartment constructed in accordance with these Rules and any other building or compartment.

The following are the Rules now added as to Reinforced Concrete Construction :—

Buildings constructed with concrete reinforced in every part with embedded metal rods or bars spaced not less than 12 inches apart, securely connected or overlapping at least 6 inches at all abutments and intersections, having also bands or bars across the thickness of the concrete, may be deemed of Standard Fire-Resisting Construction, provided they conform to the above Rules with the following modifications :—

Rule 3. Concrete may be composed of sand and gravel that will pass through a ¾-inch mesh, or of the other materials mentioned in the Rule, but in any case the cement used must be Portland (equal to the British Standard Specification of December 1904), in the proportion of 6 cwt. of cement to each cubic yard of concrete. The concrete must be thoroughly mixed both dry and wet, and must be rammed round the metal work in position, every part of which must be completely enclosed with solid concrete.

Rule 4. No external wall to be less than 6 inches, and no party wall less than 13 inches thick in any part.

Rule 7. Flues may be built of reinforced concrete as described not less than 4 inches thick, if lined throughout with fire clay tubes not less than 1½ inches thick. No timber or woodwork to be in contact with such flue.

Rules 10 and 11. Floors must be constructed of reinforced concrete as described not less than 5 inches thick in any part without woodwork bedded therein, supported on beams and columns of similar reinforced concrete.

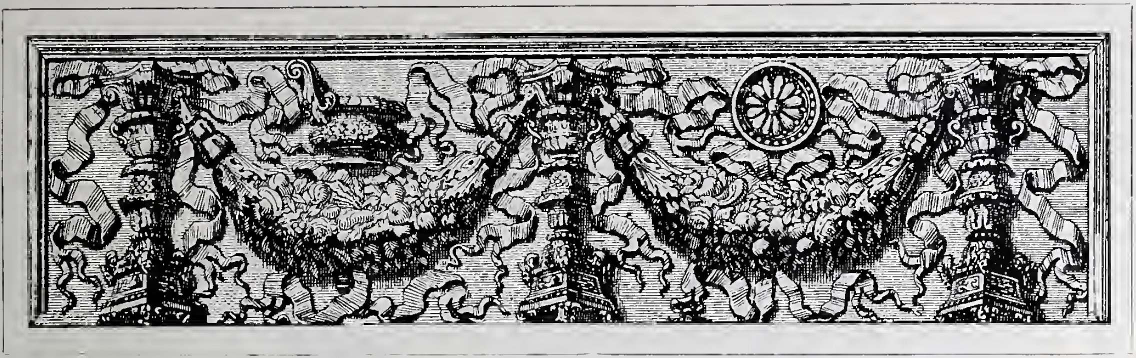
Rule 13. Roofs must be constructed in a similar manner to floors, the concrete in no part to be less than 3 inches thick.

Rules 14, 15, and 16. All structural metal work must be embedded in solid concrete, so that no part of any rod or bar shall be nearer the face of the concrete than double its diameter ; such thickness of concrete must be in no case less than 1 inch, but need not be more than 2 inches.

Rule 22. Fire-proof Compartments in connection with reinforced concrete structures must also be of reinforced concrete as described, with walls not less than 9 inches, and floors not less than 5 inches in thickness.

Rule 18. Enclosure to staircase and hoist, if of reinforced concrete as described, may be 6 inches in thickness.

Buildings conforming to the foregoing specification are charged reduced rates of premium for fire insurance as compared with buildings of ordinary construction.



ALFRED WATERHOUSE, R.A., LL.D.

FOUR long years of enforced retirement and gradually increasing paralysis of his physical and mental activities formed the sadly clouded ending to the brilliant professional career of Alfred Waterhouse, whose name has long been a household word in the architectural world. Only those who knew the untiring energy he devoted to every detail of his crowded life's work will fully realise what the sudden divorce from all its many-sided interests must have meant to him. The blow fell in the August of 1901 in the form of a paralytic seizure, and from that time until his death, just four years later, he never again visited London, though, for a long time, he was able to enjoy the air and sunshine in the grounds of his country house, which stands on the high ground between Pangbourne and Newbury.

Alfred Waterhouse was born at Liverpool on July 19th, 1830. His father—also an Alfred Waterhouse, a leading merchant of that city—had married Mary, daughter of Paul Bevan. Both his father and mother belonged to the Society of Friends, and their son was accordingly educated at the Friends' School, Grove House, Tottenham. To his friendships among the most influential and wealthy Quaker families he was largely indebted for the substantial substratum of his practice during the whole of its earlier years.

Articled to a certain Richard Lane, of Manchester, young Waterhouse soon freed himself from the weak classic traditions of the office in which, as a pupil, he obtained his first architectural training; but, at a still earlier period, he had developed that passion for sketching, in both line and colour, which ever after distinguished him. To J. D. Harding, from whom he received lessons, may possibly be traced some of the influences which characterised his vigorous drawing of landscape, especially his very effective rendering of foliage. The choice of architecture as his profession was probably the resultant of two forces—on the one hand his own ardent desire to devote himself to the art of painting, and, on the other, his parents' wish that his energies should be given to a mercantile career. The choice proved an opportune one in every way, for it combined a congenial and absorbing life's work with a reward that falls to the lot of but few.

Fortunate from the first, his pupilage was immediately followed up by a prolonged Continental tour, chiefly in France and Italy; and, in Italy, he met as fellow students some of those who were destined in after years to become his colleagues at the Academy—Leighton and Millais to wit.

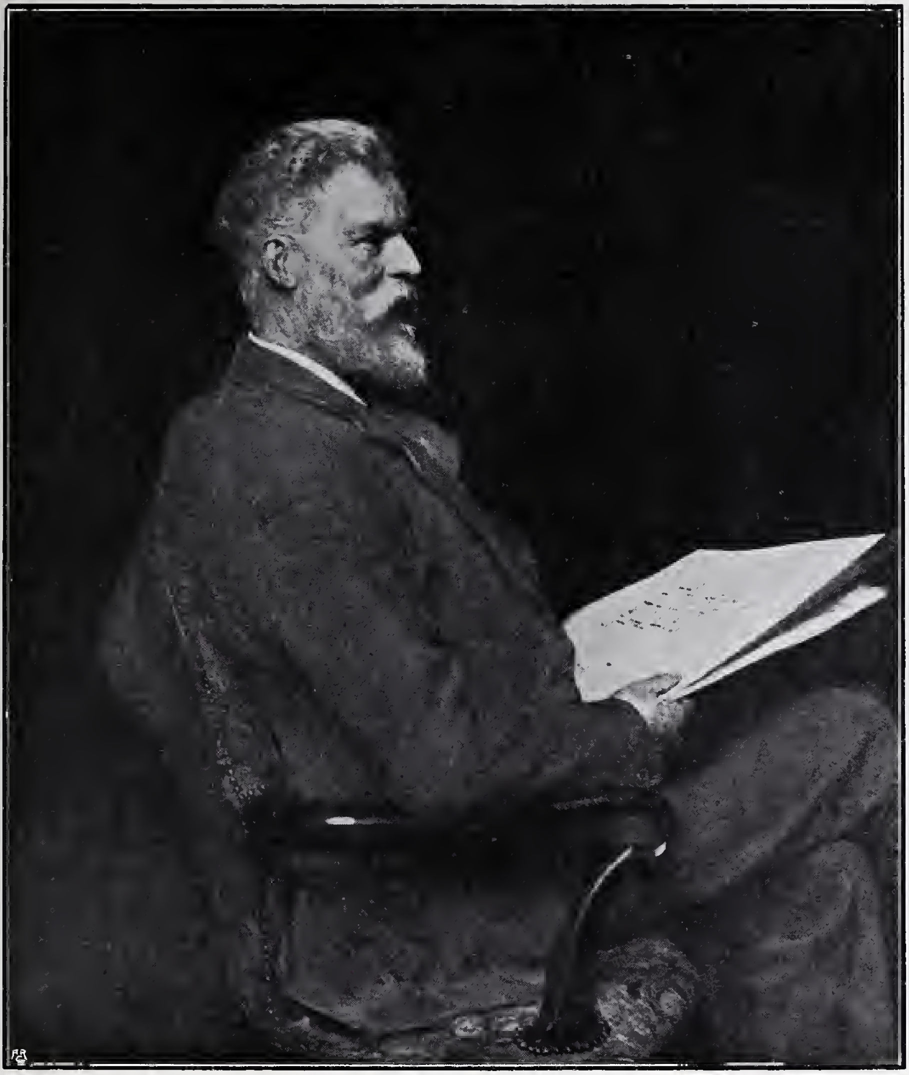
On his return to England commissions awaited him at the hands of friends of his family, and he began practice in Manchester in 1853. A few years of miscellaneous work—private houses, warehouses, &c.—gave him a firm footing, and in 1859 came his first great wave of success, on the crest of which he was carried long afterwards, for it was in that year that he gained the important competition for the Manchester Assize Courts. His competitive design was vastly improved upon in execution, and the final result was one that brought him commendation from all branches of the legal profession, from the general public, and from men such as Ruskin, who looked at the building from a purely artistic standpoint. The architect was allowed carefully to superintend the equipment of the judges' lodgings attached to the Courts, and designed furniture and appointments, even down to the damask table-cloths and china services. For months after its opening the building was daily inspected by such crowds of influential visitors that Mr. Waterhouse once playfully remarked upon the post of curator being a more lucrative one than that of the architect.

The completion of these Assize Courts was closely followed by the building of the large gaol in their rear, a structure of equal importance as regards cost. It was just at this time that the question of the erection of the Law Courts in London was rapidly coming to the front, and this, no doubt, weighed largely with Mr. Waterhouse when, early in 1865, he took the step of moving from Manchester to London. Although, for many years afterwards, he still kept on his Manchester office with a small surveying staff (in those days his quantities were prepared in his own office), nevertheless his headquarters for business and his residence were established at No. 20 (then No. 8) New Cavendish Street, and there it was that ever afterwards his work was carried on through all the busy times that followed.

The competition for the Law Courts occupied his chief thoughts during many long months of labour early and late. He had numerous legal friends well qualified to give him good advice on knotty questions of the special arrangements desirable for such a building, and his plans, well illustrated by a compendious volume of photographs from the drawings, with schedules of accommodation, &c., secured the practically unanimous vote of the working committee of barristers and solicitors appointed to report upon the relative merits of the designs submitted. But the eventual award lay with other assessors, and their voices prevailed on behalf of another competitor. Simultaneously with the inevitable discussions that followed their much questioned decision, the Government of the day announced its appointment of Mr. Waterhouse as architect for the Natural History Museum. This appointment was, at the time, generally accepted as an acknowledgment by the Government of a certain claim that he had upon them in another connection, though, as a matter of fact, the Museum had been, at least informally, entrusted to him before the result of the Law Courts competition was achieved.

The Natural History Museum is perhaps one of Mr. Waterhouse's most characteristic buildings, as it certainly is the most original. It embodies the extensive use of what, from the first, he was always so specially fond of—the round arch. His earliest predilections were in favour of an Italian Gothic—Lombardic and almost Byzantine in charactor—with freely treated detail, and in this somewhat flexible style he felt himself most at home. It has been asserted that the Natural History Museum is too redundant with ornament, but it is difficult altogether to agree with this contention. The material used (terra-cotta) almost demands a free use of enrichment, and in these non-heraldic days, which specially lack characteristic *motif* for suitable decoration, it would have been difficult in such a building to forego the specially appropriate ornamental detail suggested by the forms of animal and vegetable life which it was the very purpose of the building to record. These forms, moreover, are always vigorously treated and subordinated to the general lines of the structure.

In any case Mr. Waterhouse may well be forgiven the conventionalised barks of trees which enrich his columns, the monkeys which clamber round the big arches of the Central



THE LATE ALFRED WATERHOUSE, R.A., LL.D.

From a photograph of the Painting by W. Q. Orchardson, R.A., in the possession of the Institute.

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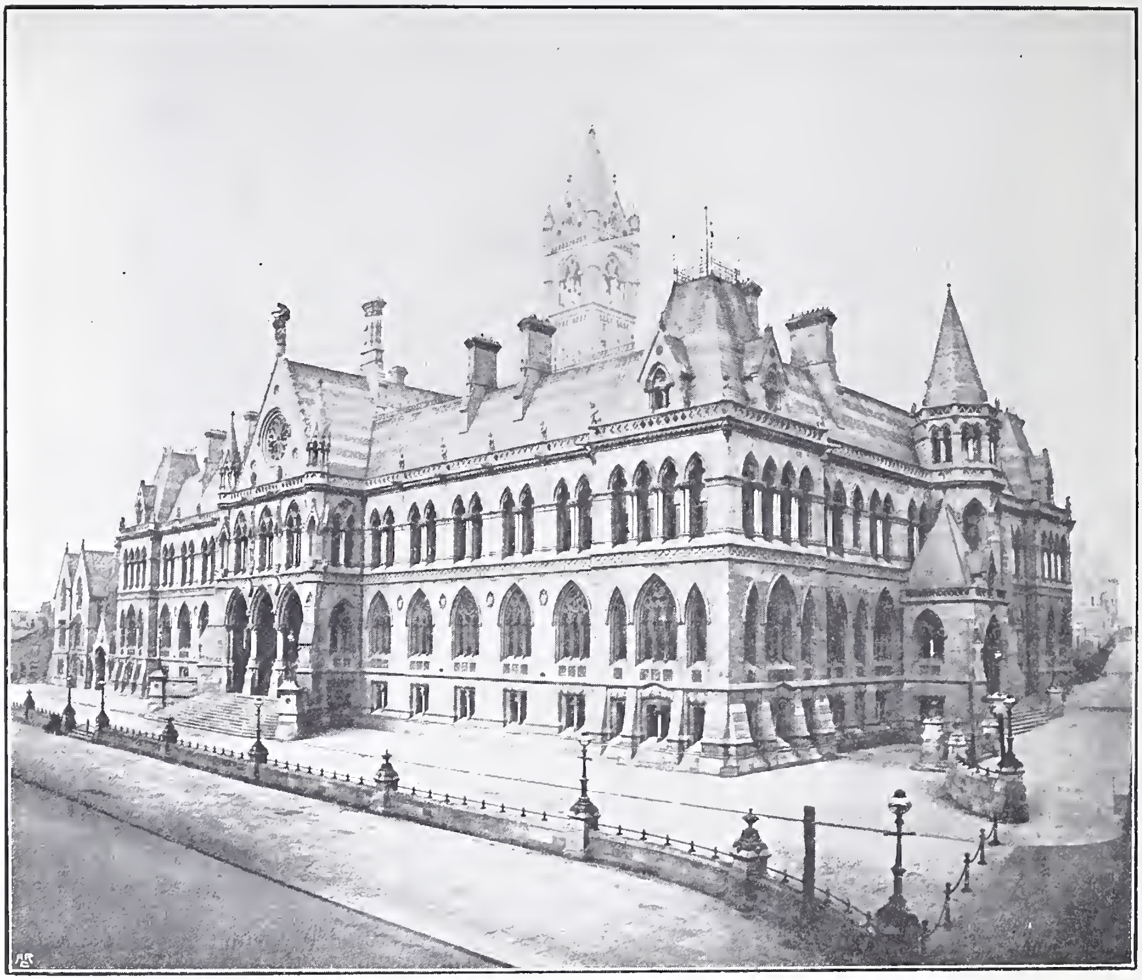
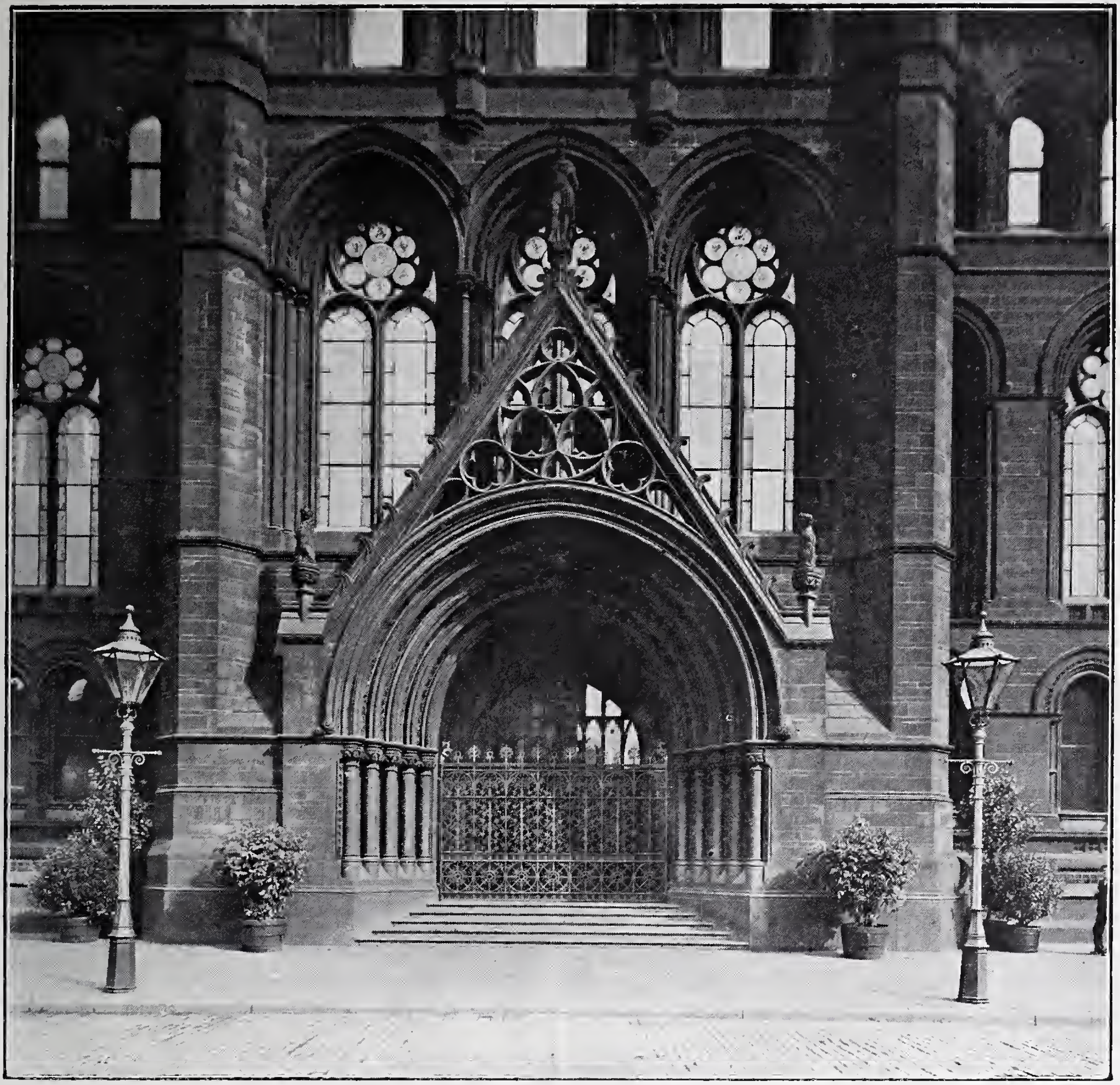
Hall, and the extinct birds and other animals which find their place on his façades, when one considers how all such matters of detail are overborne by the dignified unity of general conception, the simplicity and suitability of the plan, and the general adaptability of all its parts to their several purposes. The building suffers, however, from the parsimony of the Government of the day, that condemned it to be built in a hole considerably below the street level, from its present incomplete condition, and also, to some extent, from subsequent modification of the intentions of the original plans ; but, taken as a whole, it must always be looked upon as a memorable achievement.



MANCHESTER ASSIZE COURTS.

Practically at the same time as the erection of the Museum Mr. Waterhouse had two other very extensive works going on in the provinces—Eaton Hall, near Chester, for the Duke of Westminster, and the Town Hall at Manchester. The Assize Courts had probably attracted the notice of the Duke (at that time Earl Grosvenor) when he gave Mr. Waterhouse a first commission—a signboard for the Grosvenor Hotel at Chester ! This, however, had not long been hung when the Duke came, by the death of his father, into possession of the estates, and immediately decided upon alterations at Eaton Hall. It will always be a matter for regret that the eventual extent of these alterations was not foreseen by the Duke, stretching as they did over about twelve years. His Grace's original intentions were comparatively limited, but he was gradually led on to modify every part of the Hall that he did not entirely renew. A complete rebuilding scheme, if faced at the outset, would have been more satisfactory, and probably no more costly.

The Manchester Town Hall is well known as an excellent example of Mr. Waterhouse's consummate skill in planning and in the clever disposition of the general masses, the grouping, and skyline of a monumental building. It marks his principal achievement in the Gothic style that was destined so soon afterwards to grow into disuse for municipal purposes. The site was a peculiarly difficult one, and, as such, well adapted to display the special talents for which Mr. Waterhouse will be chiefly remembered. In completely triumphing over the perplexities of plan that necessarily accompanied any fulfilment of the conditions that had been formulated, he at the same time evolved, almost instinctively, the most charming features



MANCHESTER TOWN HALL : PRINCIPAL ENTRANCE.

of his design, such as, for instance, the beautiful circular staircases at the internal angles of the site. The mural paintings that decorate the Great Hall of this building brought him into intimate relationship with members of the Royal Academy, who recognised his merit by electing him as Associate in 1878 and afterwards as Academician in 1885. As regards his connection with the Academy, it may here be mentioned that for many years he acted as Treasurer to that body, and was a constant exhibitor—not merely in the architectural room, but also in the water-colour gallery. It is probable that comparatively few know what admirable skill he possessed as a colourist, and it is greatly to be desired that some day it may be possible to have a public exhibition of a selection from the hundreds of sketches that form the records of his various holidays amongst Swiss mountains, by the Italian lakes, and in old-world towns all over the Continent and the British Isles.

It is unnecessary in this short memoir to catalogue, other than very briefly, the large number of works carried out by Mr. Waterhouse during his half-century of architectural activity. *The Builder* of 26th August last contained a fairly complete list of his principal buildings all over the country, with their approximate dates.

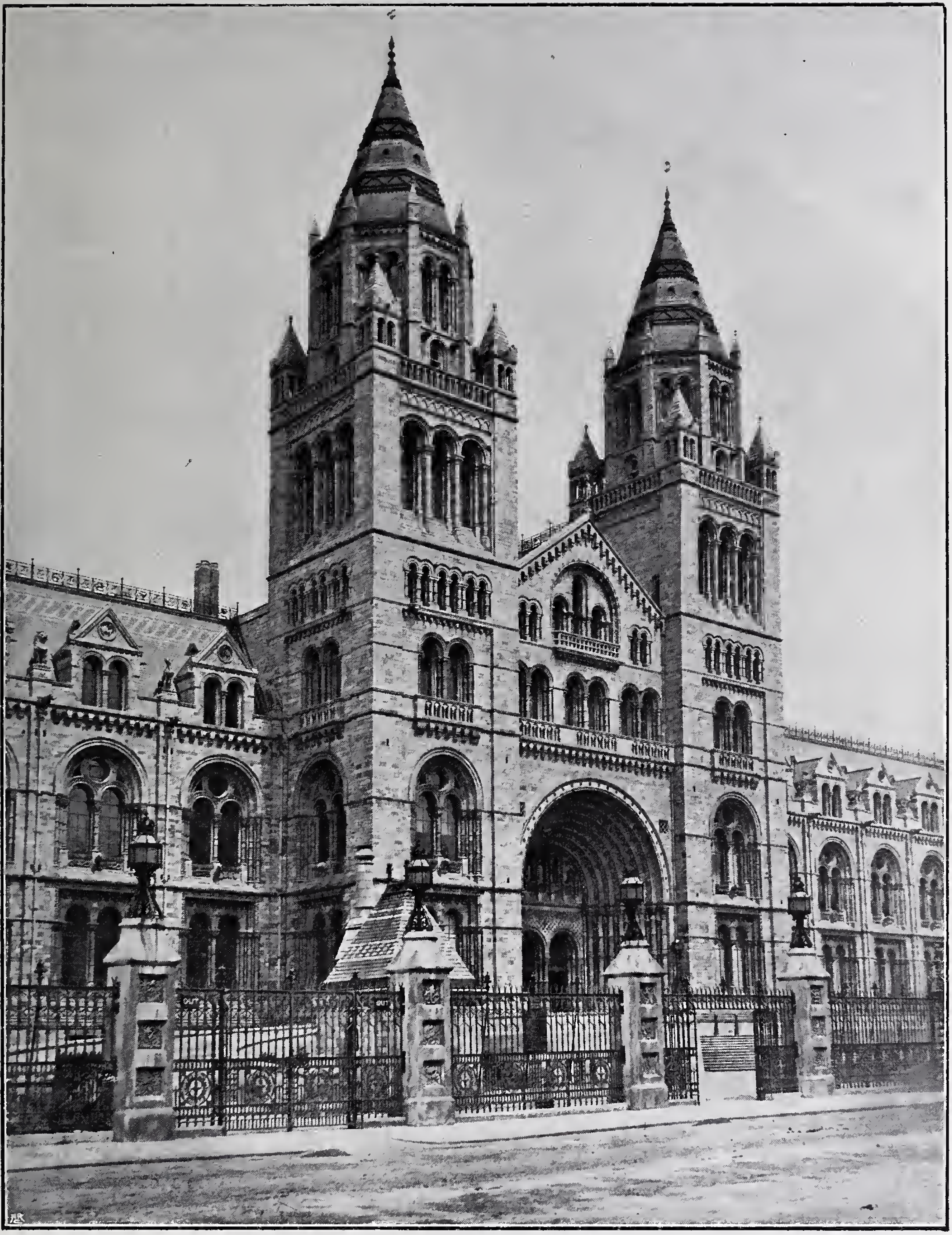
At the same time a bare mention may be made of some of them—in groups—sufficient to show the very varied and extended ramifications of his professional work. His New University Club in St. James's Street, S.W., was perhaps his earliest London building of any importance, and exhibits the particular phase of Gothic, unfettered by traditional detail, that characterised so much of his subsequent work. His other chief London buildings not yet mentioned are—

The extensive offices of the Prudential Assurance Company in Holborn.
City and Guilds Technical Institute in the Exhibition Road.
The large quadrangle forming "New Court" in Carey Street and Portugal Street, W.C.
The Jenner (now Lister) Institute of Preventive Medicine on the Chelsea Embankment.
Surveyors' Institution, Great George Street.
National Liberal Club, Whitehall.
St. Paul's School, Hammersmith.
National Provincial Bank, Piccadilly.
University College Hospital.
Extensive alterations Grosvenor Hotel, Pimlico, and Grand Hotel, Charing Cross.
The Equity and Law Life Insurance Offices, Lincoln's Inn Fields.

Outside the metropolis his principal works may be conveniently classified as follows:—

UNIVERSITY AND COLLEGIATE BUILDINGS.

Cambridge University—Gonville and Caius College (new buildings).
,, Trinity Hall, New Court.
,, Jesus College.
,, Pembroke College, Master's Lodge.
,, ,, ,, Hall, Library, Lecture Rooms, &c.
,, The Union Buildings.
,, Girton College (of which the later portions were carried out in conjunction with Mr. Paul Waterhouse).
Oxford University— Balliol College (New Hall, south front, tower, &c.).
,, Union Debating Room.
Yorkshire College of Science at Leeds.
University College, Liverpool.
The Owens College, Manchester.



NATURAL HISTORY MUSEUM, SOUTH KENSINGTON.

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HOSPITALS AND KINDRED INSTITUTIONS.

The Turner Memorial Home, Liverpool.
Royal Infirmary, Liverpool.
St. Mary's Hospital, Manchester.
Royal Alexandra Hospital, Rhyl.
Salford Lying-in Hospital, Manchester.
New wing and other buildings, Nottingham General Hospital.

INSURANCE OFFICES AND BANKS.

Prudential Assurance Offices in Glasgow, Dundee, Edinburgh, Bristol, Huddersfield, Oldham, Bradford, Southampton, Plymouth, Portsmouth, Manchester, Liverpool, Leeds, Birmingham, Cardiff, Newcastle-on-Tyne, and Leicester.

The extensive head office of the Refuge Assurance Company at Manchester.
Royal Insurance Offices, Manchester and Leeds.
National Provincial Bank, Manchester.
Foster's Bank, Cambridge.
The "Old Bank," Bradford.
Williams, Brown, & Co.'s Bank, Leeds.

LARGE PRIVATE RESIDENCES.

Allerton Priory, Liverpool, for the late J. G. Morris, Esq.
Villa Allerton, Cannes, for the late J. G. Morris, Esq.
Heythrop Hall, Oxon., for Albert Brassey, Esq.
Iwerne Minster, Dorset, for the late Lord Wolverton.
Hutton Hall, Guisbro', for the late J. W. Pease, Esq., M.P.
House, Blackmoor, Hants, for Lord Selborne.
And many others.

MISCELLANEOUS.

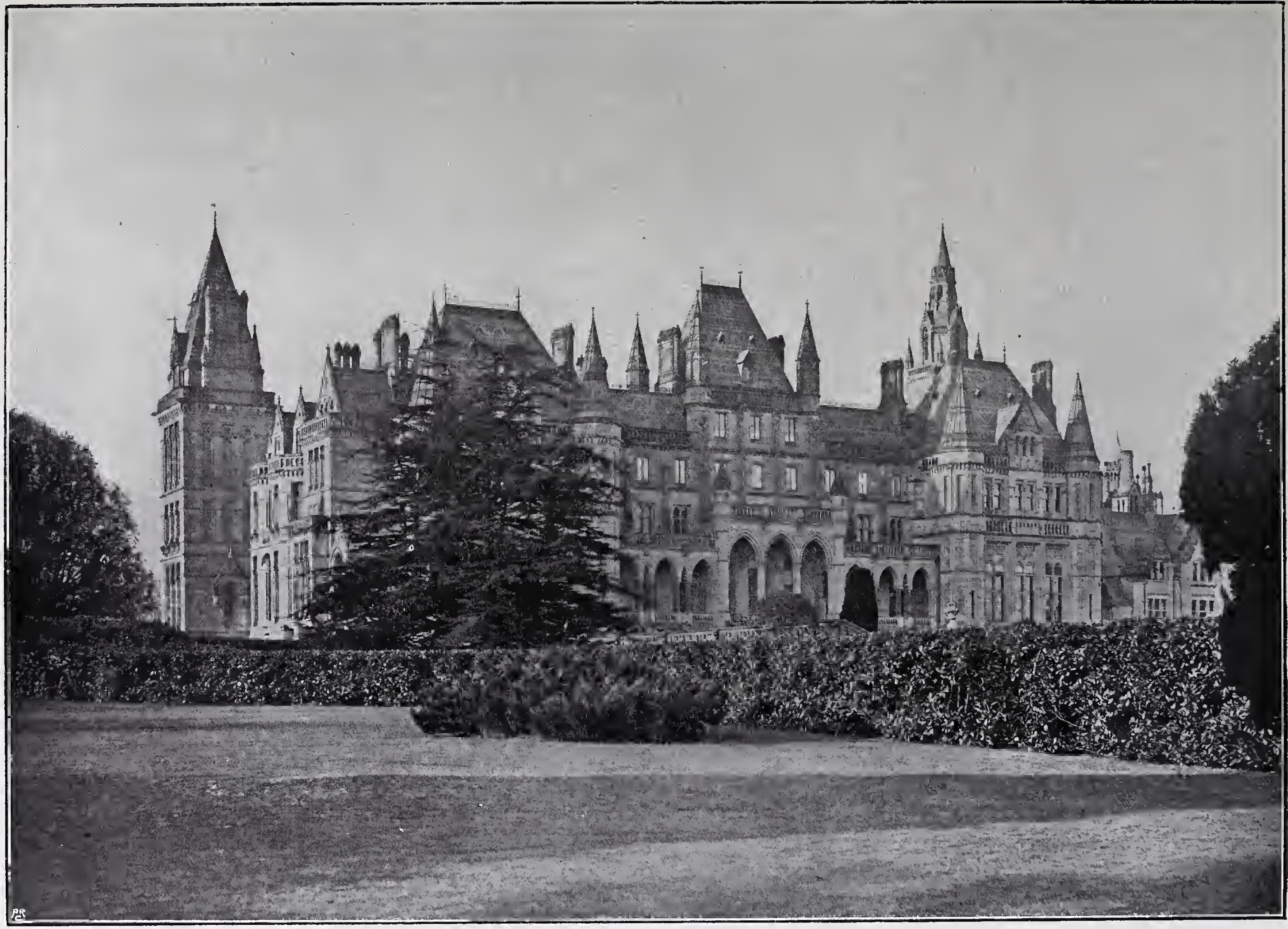
Town Hall, Hove, Sussex.
Clergy Orphan Schools, Bushey, Herts.
Hotel Métropole, Brighton.
L. and N.W. Railway Hotel, Lime Street, Liverpool.
Seamen's Orphanage, Liverpool.
Municipal Buildings, Reading.
Public Hall, Alloa.

Of church work Mr. Waterhouse did comparatively little, his principal church being St. Elizabeth's, Reddish, near Manchester, built for Sir W. H. Houldsworth.

He erected several chapels for Nonconformists in Manchester, London, and elsewhere. Two of them in London are the Lyndhurst Road Congregational Chapel, Hampstead, and the Weighhouse Congregational Chapel, Duke Street, Grosvenor Square. Both of these are distinctly original in treatment, especially the plan of the former, where the body of the chapel is a perfect hexagon with deeply recessed galleried bays to the three sides opposite the pulpit —the porches coming between these bays.

The above list necessarily includes but a portion of Mr. Waterhouse's executed works, to which list might be added a goodly residue were it made in any way complete.

The present generation of architects will scarcely need reminding how much in request he was as assessor of large competitions in all parts of the kingdom, and how largely the earlier successes of so many of our leading men of the present day were owing to his powerful grasp of the relative merits and possibilities of the varied designs submitted for his judgment.



EATON HALL, CHESTER : CENTRAL BLOCK AND LIBRARY WING.

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It has already been stated in this Journal how much the Institute owed to his loyal adherence and energetic support during the years of his Presidency, and at all times during his long connection with it from his election as Fellow in 1861 to his retirement from active life in 1901. Though at no time was he specially desirous of taking upon himself public office, his whole energies were always unsparingly devoted to any cause with which he allied himself. Such a cause never failed to derive profit from his wise counsel and administrative abilities. He very specially identified himself with the foundation of the Society for Checking the Abuses of Public Advertising, of which he was for a long time president; and he was also a zealous treasurer of the Artists' General Benevolent Institution.

Honours, not a few, fell to his share. In addition to his English academic distinction as R.A., he was made an Associate by the several Academies of Vienna 1869, Brussels 1886, Antwerp 1887, Milan 1888; a member of the Royal Academy of Berlin 1889; a Correspondant de l'Académie des Beaux-Arts, Institut de France, and a Doctor of Laws of the Victoria University 1895. He was allotted the Queen's Gold Medal of the Royal Institute of British Architects in 1878, and obtained a Grand Prix for architecture from Paris in 1867, with a "Rappel" in 1878. He was a member of the organising committee for the Imperial Institute, of the Westminster Abbey Commission, and of the jury to decide upon the great international competition for the proposed new façade to the Cathedral of Milan.

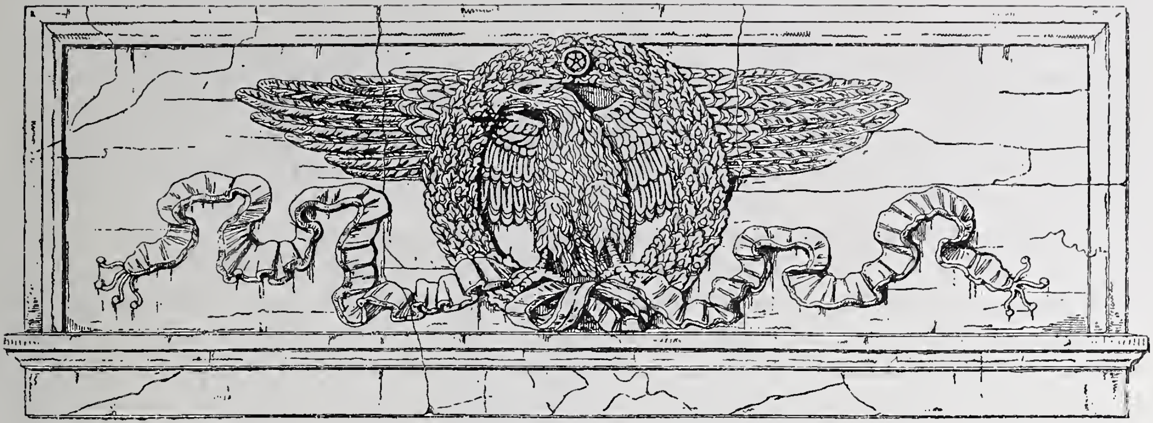
His great distinction was, however, the inexpressible charm of his personality. It has been remarked, in no spirit of exaggeration, that his very smile was worth a thousand a year to him, and none of those who ever came under its magnetic influence would be inclined to dispute the assertion. But the smile was merely the reflection from the sterling qualities of heart and mind that ever characterised him. His refined courtesy was felt by all with whom he was associated. With an unlimited capacity for hard work and all enthusiasm in doing it, he put a boyish energy and "abandon" into the recreations of his leisure moments.

Mr. Waterhouse married in 1860 Miss Elizabeth Hodgkin, daughter of John Hodgkin, barrister-at-law, and sister of Thomas Hodgkin, whose writings on Roman history are so widely known. His eldest son, Mr. Paul Waterhouse, M.A., joined him in partnership in 1891, and is, in consequence, partly responsible for some of the work executed since that date. He had four other children, three of whom survive, his eldest daughter being the wife of Mr. Robert Bridges, the poet.

The last twenty-three years of his life, when away from town, were passed amidst the delightful surroundings of his Berkshire home—Yattendon Court—on a hill crest overlooking a wide stretch of undulating woodland and down; and it is pleasing to think how the fleeting lights and shadows of the landscape before him must have gladdened his eyes long after his failing powers prevented his recording his impressions in the glowing colours he had handled so well. His pupil and, for many long years, assistant, who writes this brief record of his life, will always have a sad remembrance in the fact that he was prevented by illness from joining the sorrowing procession of mourners that on a wet afternoon in August slowly paced the winding path from the hill-top to a corner of the little churchyard at its foot, where were deposited the remains of the former master whom he loved and admired.

Thomas Cooper.

Birmingham.



A DESCRIPTION OF THE TOWER AND SPIRE OF ST. NICHOLAS' CATHEDRAL, NEWCASTLE-ON-TYNE.

By W. H. Wood.

Read before the Northern Architectural Association, February 1905.

WE are all, I am sure, admirers of the beautiful steeple of St. Nicholas', which from so many points of view crowns the city of Newcastle. Many no doubt have sketched it, but as probably few have made measured drawings of it, those I am about to show will, I hope, be interesting. A measured drawing is often a surprise to those who have only made mental records or perspective sketches. I have read of an over-zealous restorer who, when remonstrated with for his suggested destruction of an old church tower in order to replace it with something more "mediæval," replied, "Yes, I admit that the tower looks all right, but if you will step into my office I will show you a measured drawing of it, and you will see what an absurd thing it really is!" I do not of course mean that you will find the steeple of St. Nicholas' absurd in elevational drawings, but you will probably find that the contours and general proportions appear different from your expectations.

It might not be out of place here to suggest that drawings of the "artistic draughtsman" type were not used by the old masters of our profession, either Mediæval or Renaissance, who were content with little more than diagrams and rough sketches; while models were much more used than now for judging of the ultimate effect of the work—a practice much employed by Sir Christopher Wren and the late William Burges.

One peculiarity about this steeple is the liability of the Corporation for its repair: this has been so ever since its erection; and when the last repairs were done in 1895, they were carried out at the expense of the Corporation of Newcastle by our firm. The same is the case at Antwerp, where the north-west tower of the Cathedral is entirely under the control of the Corporation of the city, and all expenses connected with the upkeep of the tower come out of the town revenue.

This gives the Corporation the control of the bells, and at St. Nicholas' the Corporation can have them rung at any time, so long as it does not interfere with Divine service.

Of course the primary reason for the existence of a church tower is to hold bells; and we must remember that bells played a very important part in the Middle Ages, being rung not only for the calling of worshippers to the church and on occasions of public rejoicing and festivals, for the summoning of guilds, as the freemen of Newcastle are to this day, but also in case of alarm to call the citizens to defend the walls against assailants, to dispel tempests, to drive away evil spirits, to avert plague and pestilence, while the tolling of the passing bell besought the hearers to pray for some fellow Christian at that moment passing from this life into the intermediate state, and the solemn note of the " death bell " gave warning that all that was mortal of the departed was being carried to its last home.

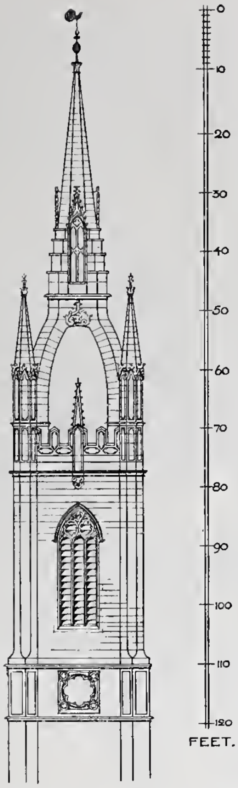
In Newcastle the town-watch used to muster in the lower part of the tower, which must have been screened off from the rest of the church. Here they received their orders for the night, and a picturesque sight they must have presented as they each emerged from the doorway of the tower, carrying bills and lighted lanterns, and proceeded to their several posts.

As for the adoption of this particular form of steeple, tradition says that it was erected in this manner so that a lighted lantern could be suspended in it to guide wayfarers across the moor at night. Sykes says that it was " illuminated antiently for the conduct of travellers." There is a record of payment made in 1566 by the Mayor of Newcastle and his brethren " for four pounds of wax made in candle for the lantern of St. Nicholas' Church, and for the working three shillings, and for two pounds of wax wrought in candle for the lantern of St. Nicholas' Church eighteen pence." We know that this was the custom in other places. According to Stowe, the steeple of old Bow Church, London, was " antiently illuminated for the conduct of travellers at night." Anyhow, for whatever purpose erected, there can be no doubt that the steeple of St. Nicholas' is a most striking object, and certainly is the feature of the building.

This steeple is of the type called the " Scottish Crown," and is, with the exception of St. Nicholas' and St. Dunstan-in-the-East at London, only found across the Border—the two well-known examples being St. Giles' at Edinburgh and King's College, Aberdeen. There was one at Linlithgow, but it is now destroyed. None of these, however, at all equals St. Nicholas' in grace of outline, both the Scottish examples appearing heavy and lumpy in comparison.

To take St. Giles' first. The tower itself is a plain rectangle without any buttresses, and with three single-light belfry windows on each face. The crown consists of eight arches springing from buttresses rising from the cornice of the tower, one at each angle and one in the centre of each face, one of these latter being enlarged to form a stair turret. These buttresses terminate in small ill-proportioned pinnacles. The back of each arch, ornamented with a cresting, is a straight raking line forming an abrupt angle with the buttress, and giving the idea of thrust. The lantern carried by these eight arches is merely a pinnacle surrounded by eight smaller pinnacles at its base. The parapet of the tower is very elegant, and consists of a row of pierced quatrefoiled circles surmounted by a cresting of the same design as used on the backs of the arches. The author of a book entitled *A Journey through Scotland*, published in 1732, speaking of St. Giles', Edinburgh, says: " Atop of this church is erected a large open cupola in the shape of an imperial crown. King David erected a copy after this over St. Nicholas' Church, Newcastle, but it does not near come up to it."

In the Aberdeen example the crown consists of four arches springing from the angles of the square boldly buttressed tower, and supported, as in the case of St. Giles', by stumpy buttresses rising from the cornice and terminating in small pinnacles. In this case, too, the backs of the arches are straight, ornamented with a cresting, and having a pinnacle placed half-way up the slope. The lantern is solid and larger than that of St. Giles', and finishes with an arched royal crown surmounted by an orb and cross. St. Dunstan-in-the-East, designed by Sir Christopher Wren, is a small structure, but elegant. The four arches spring from the corners of the tower: they are unmoulded and of high pitch, the extrados being



ST. DUNSTAN-IN-THE-EAST : STEEPLE.

ST. GILES'S CATHEDRAL, EDINBURGH.

KING'S COLLEGE, OLD ABERDEEN.

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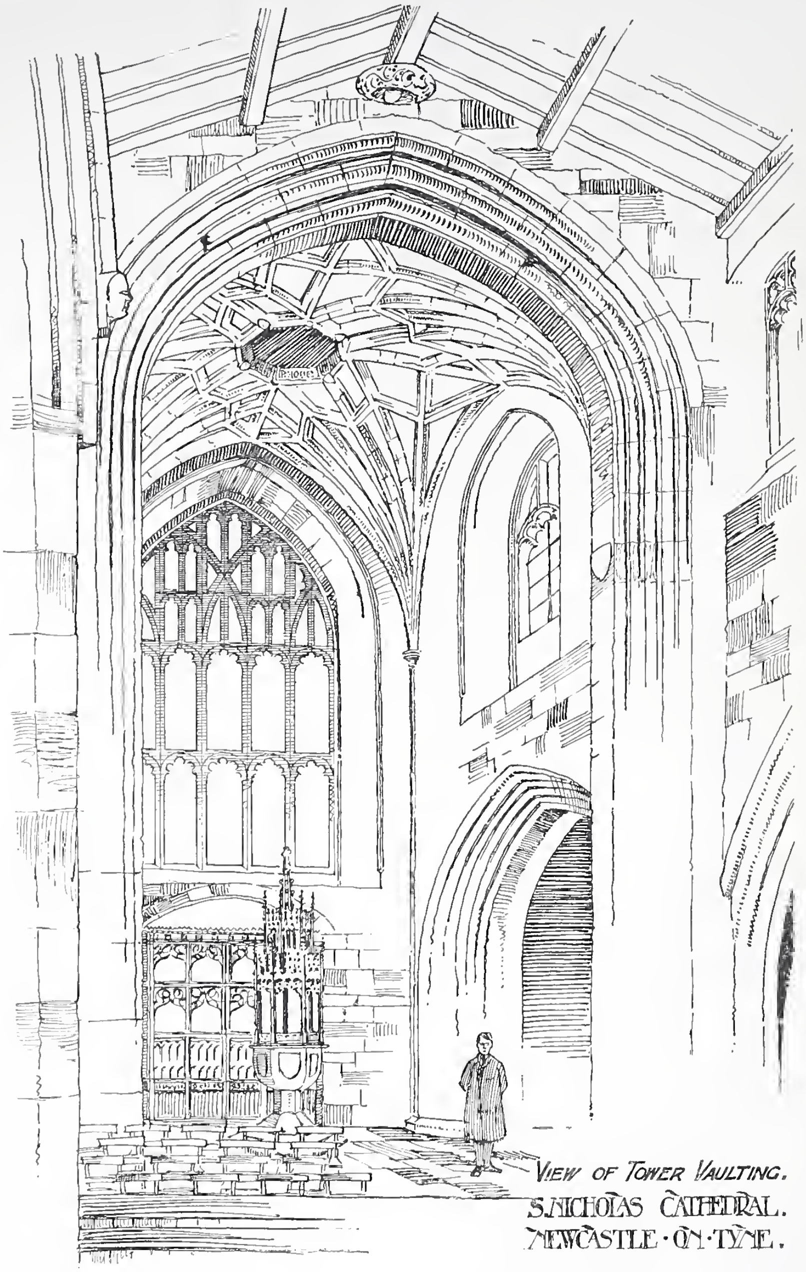
carried up by a reversed curve to the lantern, which is better proportioned than in the Scotch examples, and surmounted by a spire. Four pinnacles of good outline stand against the arches, into which they are bonded, thus giving a good mass of masonry where required to resist the thrust.



VIEW OF TOWER VAULTING.
S. NICHOLAS CATHEDRAL.
NEWCASTLE·ON·TYNE.

We will now proceed to examine St. Nicholas'. The tower stands at the west end of the nave, with which it communicates by a lofty four-centred arch moulded with a series of splayed orders, each having a deep hollow sunk in the splay. These orders are continuous on jamb and arch without the intervention of an impost. The side arches opening into the aisles

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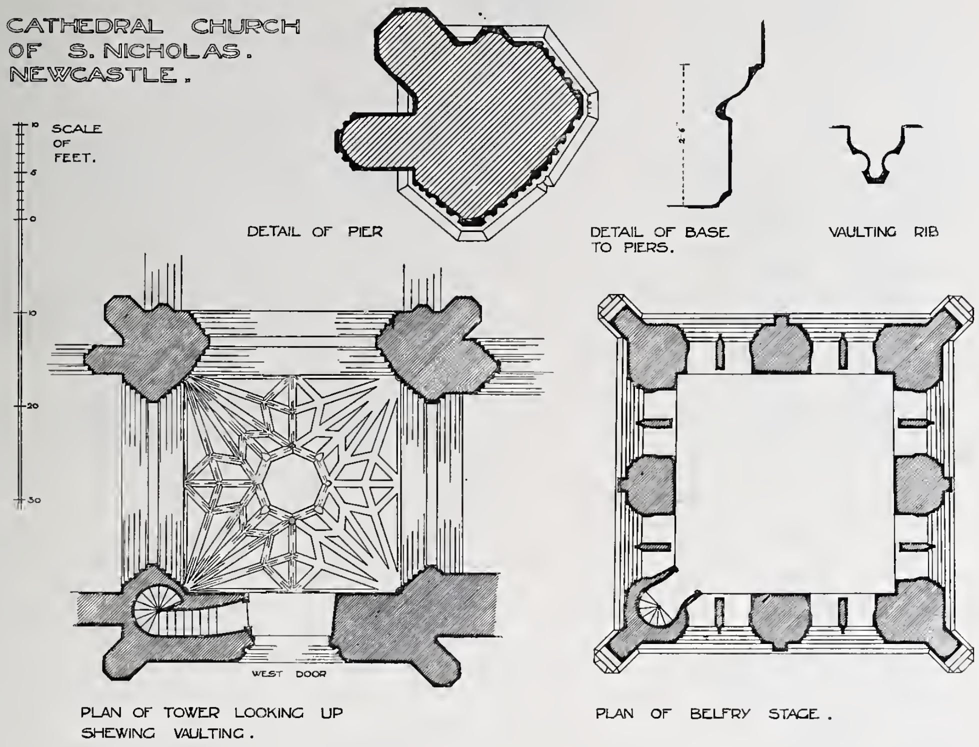
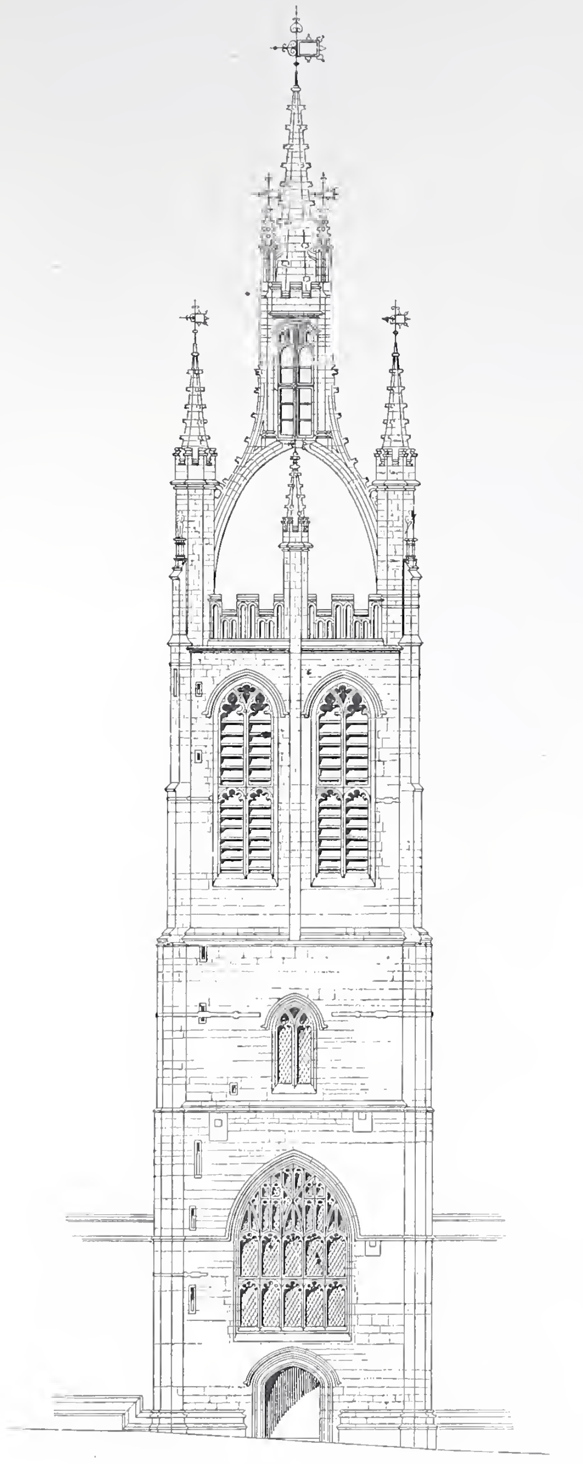
are similar but much lower, and with a three-light window over each. The mouldings of these and the arch to the nave stop on a boldly moulded plinth, which is unbroken except where the base of the vaulting shaft penetrates it. This omission of the cap is found in the fourteenth-century nave arcade, and in the nave arcade of St. John's Church, Newcastle; but in these cases the orders of the arch die on to the sides of the octagonal piers at the springing line, and are not carried down to the base.

The west side of the tower is occupied by the doorway having a depressed four-centred arch, and with a five-light transomed window over it. In each angle is a small quarter octagonal shaft, from the cap of which spring the ribs of the vaulting. This is a lierne vault of beautiful design, all the ribs being of the same size and section, a splay with deep hollow, the same as to the arches below. Shields with the arms of the founder (three annulets, two and one, in chief a greyhound courant) are placed at the four points where the main ribs abut upon the octagonal well hole, the other four points being occupied by carved bosses. Carved round the inner side of the well hole is the inscription, "Orate pro anima Roberti de Rodes." Robert Rhodes, who lived in Newcastle from 1427 till 1445, and died in 1474, was a great benefactor to the Newcastle churches; and tradition has always credited him with the erection of this tower, probably somewhere about the year 1470.

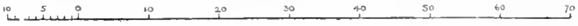


The plan of the tower is approximately square, but owing to some irregularity in the setting out the east side is narrower than the others, so that none of the corners are truly right angles. The spiral stair leading to the roof is in the north-west corner, and does not show externally. The entrance to it is in the north jamb of the west doorway.

The staging of the tower is good, although unusual in this part of the country, the belfry stage being tall in proportion to the rest. Well-marked horizontal members



West Elevation



coincide with the internal divisions, the first being a heavy string at the level of the ringing chamber floor, and the second, which is formed of three courses of offsets, at that of the belfry. Staging, or the marking of the horizontal divisions of towers, is an art in itself. Many simple but very dignified towers owe their success to skilful staging. Take St. Margaret's at Durham, for instance, a simple square tower without buttresses or ornamental features, but divided into stories by bold offsets in such a way as to produce a most satisfactory effect.

To return to St. Nicholas': the angle buttresses are semi-octagonal up to the bottom of the belfry stage, where they are weathered back, and somewhat abruptly change to square set diagonally, and in this form are carried half-way up the four large angle pinnacles, where they terminate in pedestals, each supporting a life-sized figure representing Eve at the north-east corner, Adam with the apple at the north-west, Aaron with mitre and book at the south-west, and David with the harp at the south-east. These statues are very rude as works of art, and are now considerably weather-worn.

From the offset at the belfry stage there rise smaller square buttresses on the centre of each face of the tower. These are carried up through the cornice and merge into the face of hexagonal pinnacles, between which and those at the angle is a pierced battlemented parapet. This has been entirely renewed, and suggests in design the similar finish to the two stages of the central tower of Durham, which latter were entirely renewed about 1859, replacing those of about 1474.

The angle pinnacles are octagonal, 5 feet 9 inches in diameter, and 43 feet high above the cornice of the tower. They are beautifully designed, the height of the battlemented parapet being well-proportioned to the rest, and, as you will notice, the sloping sides of the upper portion curve out at the base with the most graceful effect.

There is a peculiarity in the arrangement of the crockets, which are placed on four angles only of these octagons, while in the smaller hexagonal pinnacles they are placed

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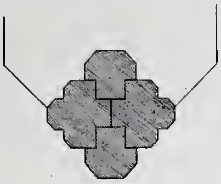
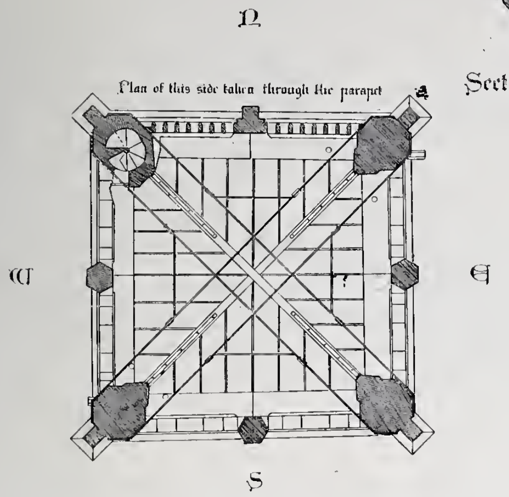
on every angle, but at alternating levels; and this arrangement is adopted on the spire itself.

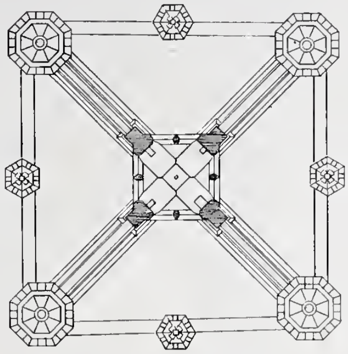
Internally corbelled squinches are formed in each corner of the tower, but do not carry anything, as the angle pinnacles scarcely overhang the line of the inner wall face, but they help to bind the angle of the tower. From the inner faces of these angle pinnacles spring the great arches carrying the lantern and spire. These are 31 feet span, and, as you will see from the section, are four-centred, but with the largest curve of 23 feet radius at the bottom, and the smaller curve of 14 feet 6 inches radius at the top, the intersection of the curves being exactly at two-thirds of the distance from the springing to the apex, where the arches meet on a key block. Through this block there is a hole 4 inches by 3 inches, probably for dropping a plumb line through during the erection of the spire, and it may have been used for suspending a pulley for hanging the light from at night. It seems hardly likely that the light would be placed in the lantern itself, as it is difficult to see how this could have been accomplished except by a man going up a ladder to do it—anything but a pleasant task on a stormy night—and if it were placed there the stonework would hide the light from anyone approaching towards the angle.



Section of Rib



Plan at A



Plan at B

Scale 10 20 30 40 50 60 70 of feet

MEASURED AND DRAWN BY MESSRS. OLIVER LEESON & WOOD, NEWCASTLE-ON-TYNE.

The section of the arches is built up of four orders, the upper one, which is crocketed, being carried in an ogee curve half-way up the angle buttresses of the lantern, which is thus much stiffened, and the arches themselves rendered more rigid, while a wonderful grace of outline is given to the whole composition, this feature being one of the chief causes of the superior elegance of this over the other examples. The courses of these ogee curves are laid with beds none of which radiate to the centre, but are approximately horizontal for the lower half, and truly so for the upper, where they are bonded in with the angles of the lantern.

There is a popular belief that there is an iron core bar in the arches, but this is a fallacy; they are stone throughout.

The structure of the lantern itself is singularly light, and consists of four angle buttresses set diagonally, between which are two-light transomed windows, the mullions being carried on arched sills spanning from arch to arch. The lights of these windows are now filled in with strong bronze frames, inserted when the steeple was repaired in 1895 in place of the iron saddle bars, which had rusted and split the stonework.

At the springing of these window heads, from which point the spire commences (see section), are two oak beams 12 inches by 6 inches, placed crosswise and fastened to each angle of the structure by iron straps. The angle buttresses terminate in pinnacles with panelled sides, from which spring small flying buttresses to the sides of the spire, which has the same graceful spreading curve at the base as have the angle pinnacles.

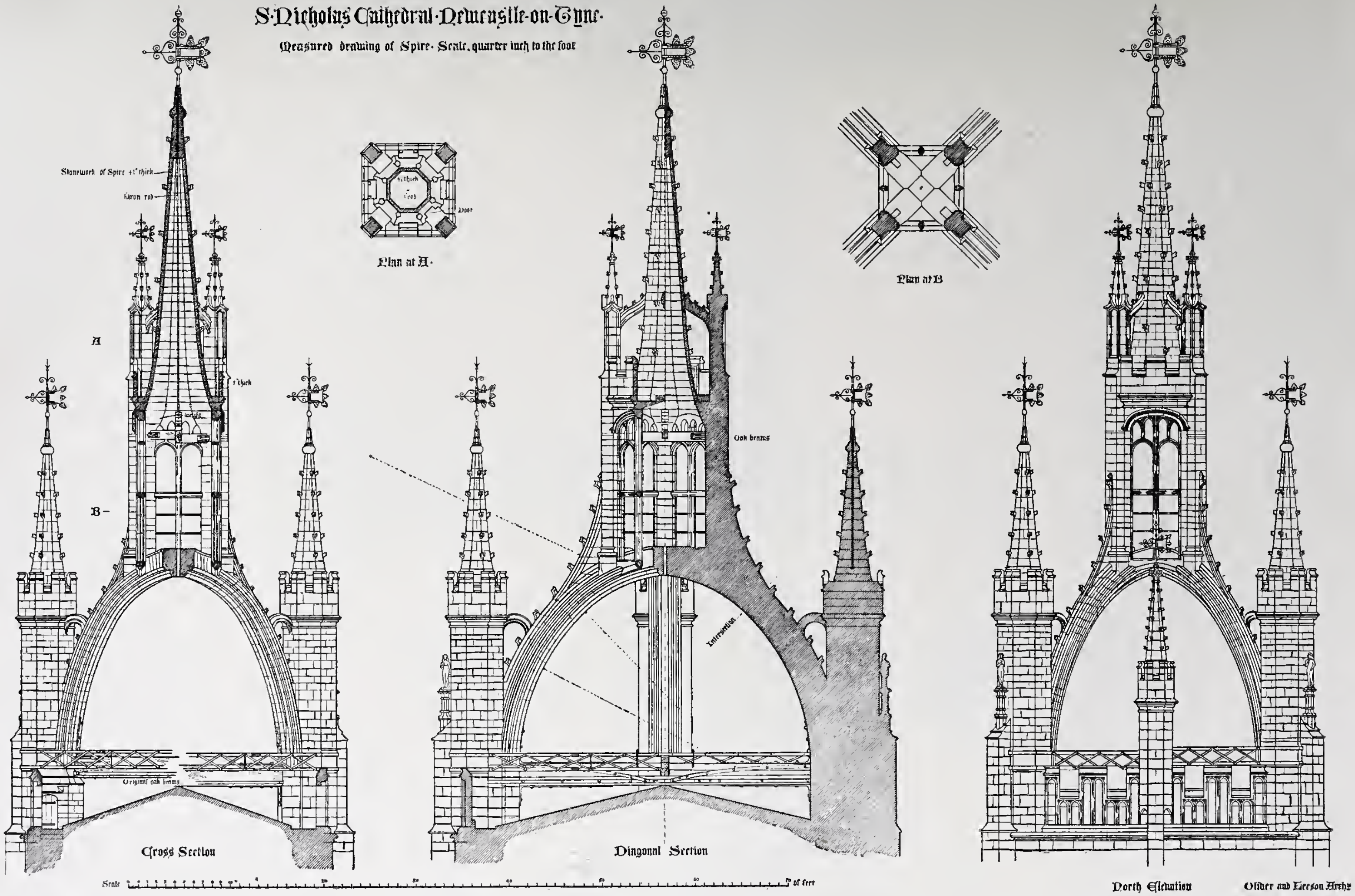
These concave lines are characteristic of the fifteenth century—you find them at Sedgefield on the pinnacles of the tower—and mark the greater appreciation of line which distinguishes work of this date from that of earlier periods. The masonry of the spire is laid with horizontal beds, and is four and a half inches thick, with the exception of the upper seven feet, which is solid. The rod of the vane is brought through this solid portion, and attached to it is a rod with a weight at its lower end which hangs a few inches above the cross-beams and is supposed to act as a counterbalance to the spire during storms. This method has been adopted in other instances, but I am not sure that it is so good as securing the rod to the cross-beams would have been, or forking it and building the ends into the masonry, as Wren did at St. Mary-le-Bow. The parapet of the lantern is five inches thick, with diminutive buttresses three inches square behind the centre merlons, and it stands on the cornice, the stones of which are carried through and form a walk round the spire. The water from this is carried off through small weep-holes at each angle of the spire, and drops down inside, this arrangement of the holes preventing the water falling on the beams.

As will be seen from the drawing, the large arches carrying the lantern are tied in at the springing by an arrangement of ties of flat bar-iron passing right round the angle pinnacles and crossing over the centre of the tower. They are fitted with union joints and are braced together vertically by diagonal straps, presenting, as seen from below, the appearance of lattice girders. These were added in 1868 by Sir G. Gilbert Scott, and were wrapped with spun yarn and tarred as a protection from the weather. This had proved an unfortunate experiment, as the tar having perished, the yarn retained the moisture, thus causing greater oxidisation than if they had been unprotected. This covering was all removed during the last repairs and the iron cleaned and painted.

There still remain within this modern ironwork the oak beams which fulfilled the same duty previously. These beams are arranged in pairs crossing diagonally from corner to corner of the tower, where they abut against the masonry of the pinnacles, and resting on each other in the centre where they cross, the lower one being supported by the apex of the roof. The spaces between the upper and lower beams of each pair are filled in with other pieces and the whole bolted together. The beams, which are considerably decayed in places, have been repaired at some time, new pieces being inserted attached to the old by scarfed joints. These newer pieces are at the ends, and are now decaying where they touch the stonework owing to the latter becoming saturated by rain and retaining the damp. At the N.E. and N.W. corners small portions of the original iron straps remain though now corroded to extreme thinness. These had passed round the pinnacles and been secured to the oak beams by round-headed

S. Nicholas Cathedral · Newcastle-on-Tyne ·

Measured drawing of Spire · Scale, quarter inch to the foot



Cross Section

Diagonal Section

North Elevation

Oliver and Leeson Archts
Newcastle on Tyne
Oct 1895.

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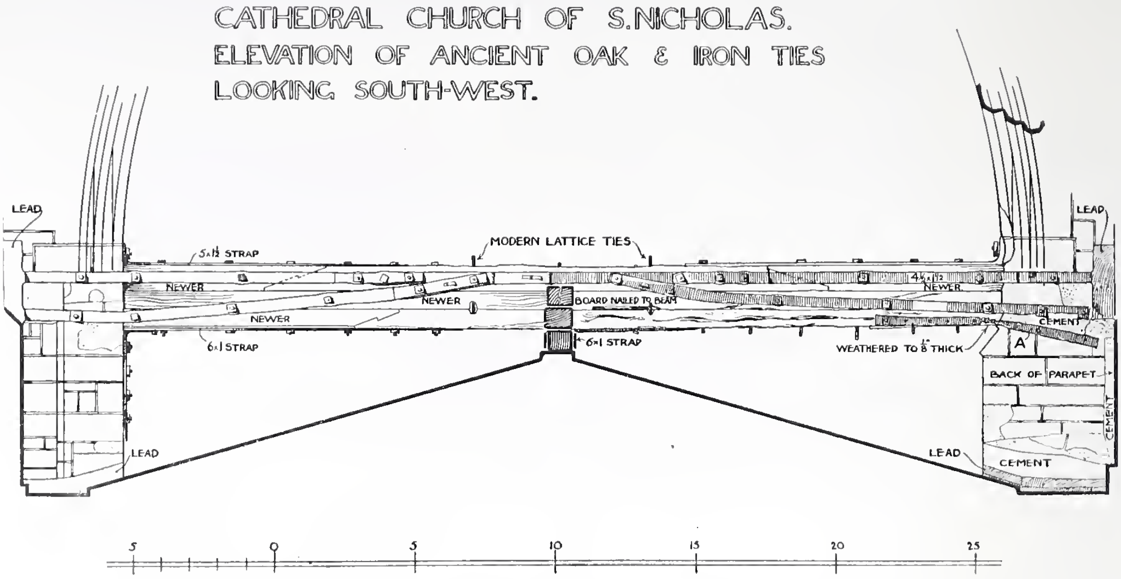
bolts. One of these is shown at A on the drawing. The straps show by their laminated structure that they had been forged. At some later time, probably when the beams were repaired, new iron straps were added. These are bolted to the oak by screw bolts with square nuts of irregular sizes. Other straps were added above and below the beams, bolted right through and turned up against the soffits of the arches and down against the pinnacle, forged with a strong root in the bend and attached to the stonework by bolts in a much less satisfactory manner for giving a direct tie than the original straps. Although the oak beams are considerably decayed and the ironwork corroded they would still be equal to their duties had the tightening up of the lattice ties by their unions not relieved them of all strain. I am inclined to believe that in the older of these beams and the traces of the iron straps remaining


CATHEDRAL CHURCH OF S. NICHOLAS.
ELEVATION OF ANCIENT OAK & IRON TIES
LOOKING SOUTH-WEST.

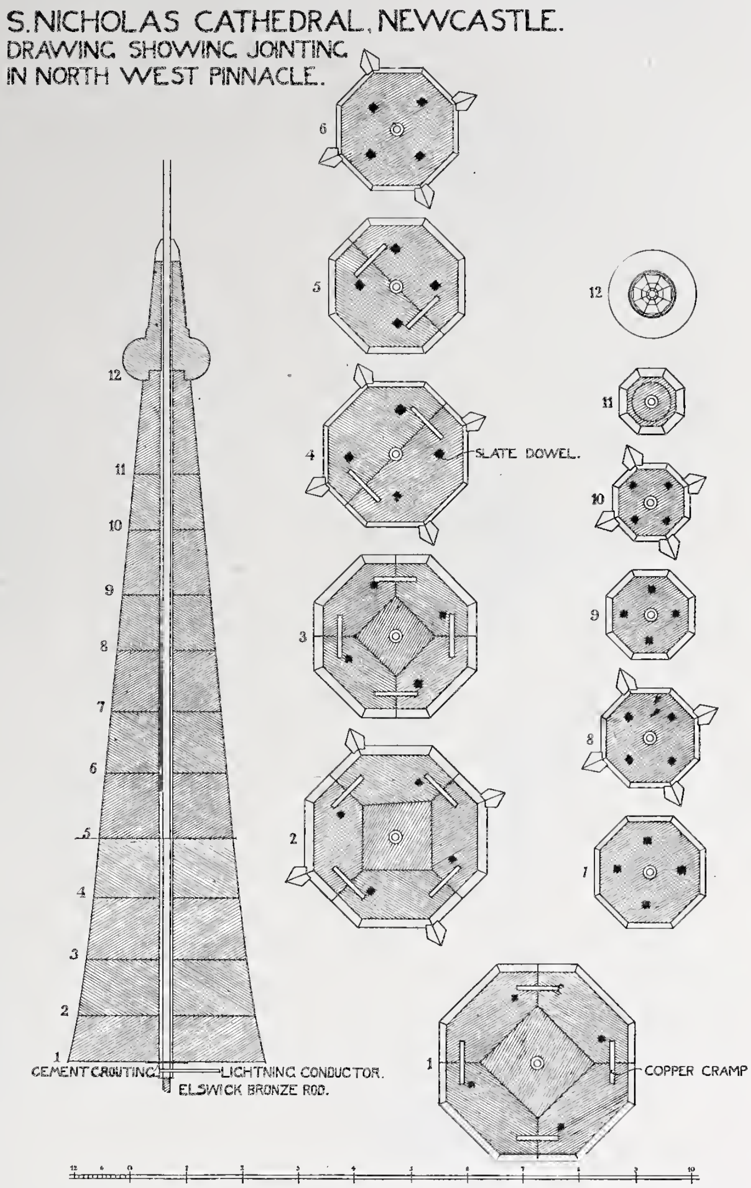
on the two north pinnacles we have the original ties inserted when the tower was built. When Mackenzie wrote in 1827 he mentions these beams as being encased in lead, which would account for their preservation. This was exactly what a mediæval architect would do. The encasing of wooden structures in lead is well exemplified by the lantern of Ely Cathedral. I do not know when the lead was removed, but there is no trace of it left now.

Although the structure may theoretically be capable of standing without ties it would not do so in actual practice, exposed as it is to the fierce gales so frequent in this N.E. corner of the country, to the occasional shocks of earthquake—which happily are of infrequent occurrence—and to the vibratory action of the bells. Experiments made with a heavy plummet suspended from the cross-beams of the lantern to just above the tie-beams below registered a swing of 15 inches in each direction during the ringing of the bells. This of course does not mean that the structure sways 30 inches, but certainly indicates a considerable movement, as indeed may be observed by the eye by getting the spire in line with a fixed vertical object while a peal is being rung.

The weight of a corner pinnacle taken from the top of the cornice of the tower and including as many of the tower voussoirs of the arch as would stand unsupported (a point shown by the lower radius line on the section) is 73 tons. The weight of one arch above this point, together with one-fourth of the lantern and spire, being the weight supported by each pinnacle, is 30 tons.

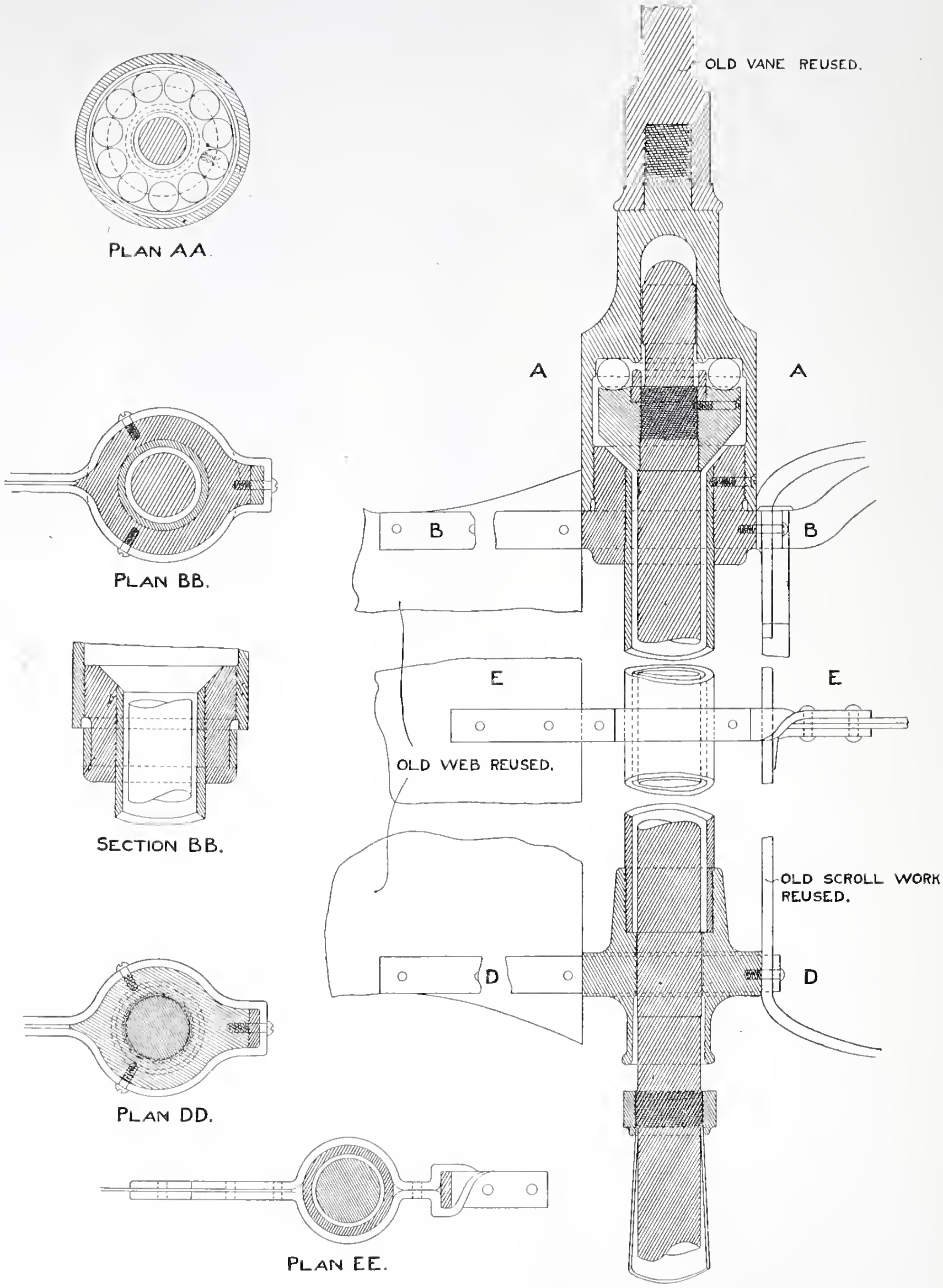
About the year 1832 the church authorities became alarmed at the condition of the tower, which was leaning over 12 inches to the south and nine inches to the west, and John Green the architect did some undersetting, and built the two large buttresses with raking joints on the south side; he also added the porch on this side, and two years later built that on the north. Previous to this the tower had no footings, but the wall rested on the clay at a depth of from four feet to five feet six inches. It was not an uncommon practice in the Middle Ages to build direct on the surface of the ground: the tower of St. Margaret's Church at Durham and Chester Cathedral are examples. A good deal of tying-up was done at this time by John Dobson, the architect acting for the Corporation, iron bands being inserted at the level of the clerestory window sills, that on the south side being continued right along the nave; other bands were inserted at the ringing chamber level.

The works done in 1832 did not have as much effect as was anticipated, and in 1868 Sir G. Gilbert Scott reunderset the tower to a depth of 14 feet below the nave floor level, putting in a proper concrete foundation. This was an operation of great difficulty, the tower having to be shored up on the south and west sides from the ground to the parapet.



When in 1895 Mr. Leeson was employed by the Corporation to make certain "reparations," to use an ancient term, he found it necessary to take down the upper part of the angle pinnacles as far as their parapets. This was a somewhat delicate operation, as there was a danger of the haunches of the arches rising when the supporting weight of the pinnacles was reduced.

To obviate this it was suggested to put centering under the arches, wedged up so as to relieve the haunches of all strain; but in this there was an element of danger, as had the centering got wet it would have swollen and dislocated the whole structure. The plan adopted was to replace the weight of each stone as it was removed by an equal weight of pig lead suspended by chains from the parapet of the pinnacle, and removed in like manner as each stone was replaced.



CATHEDRAL CHURCH OF ST. NICHOLAS, NEWCASTLE-ON-TYNE: DETAIL OF VANES ON LARGE ANGLE PINNACLES.

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You will see from the section that the courses of these pinnacles are fastened together with square slate dowels, while the separate stones of each course are bound together by copper cramps.

In addition to this the bronze rods of the vanes one and a half inch in diameter are continued down to the twelfth course from the top, where they are secured by a plate and nut to which is attached the lightning conductor. All the vanes, of which there are thirteen, have been remade, only the web and scroll-work being retained; in the case of the five large vanes they have been made to work on ball bearings.

In connection with this work Mr. Hamilton Rendel, of the Elswick firm, took a great interest in the subject and made several experiments to determine the best mixture for the supporting rods and ball bearings. For the rods phosphor bronze was tried and subjected to a test equal to 80 lb. wind pressure upon a fixed vane assumed to have got stuck fast. This was not successful, the phosphor bronze at once taking a permanent set. The metal eventually used was the mixture known as "Elswick" bronze, which was subjected to the same test and immediately returned to its original line when the pressure was removed.

Mr. Leeson, having decided to adopt the principle of ball bearings for the vanes, at first thought of agate for the balls, but was doubtful about the effect of frost on them at that height, so gun-metal was tried; but after a few weeks the vane began to work stiff and would only move with a strong wind. Upon examination it was found that although enclosed in an air-locked chamber a black greasy deposit had formed on the balls.

On the advice of Mr. Rendel these were removed, and others made of hardened copper substituted, which have proved thoroughly satisfactory.

The old vanes had been made to work with a glass socket resting on a steel point, and in every case the latter had drilled through the glass, the broken fragments of which were jammed between the rods and the enclosing tubes, entirely preventing any movement. This shows that glass is a most unsuitable material for the purpose, and should always be avoided.

In the smaller vanes the supporting rod has a blunt end, and between it and the metal socket is interposed an agate skate of lenze section, an arrangement not so sensitive as the balls, but which acts fairly well and cannot get out of order.

It is interesting on a windy day if the wind is blowing on to a corner of the tower to see the vane on the lee side being whirled round and round by the eddying currents; the stonework breaking the force of the wind causes a partial vacuum on the opposite side into which the air is drawn in a manner resembling the whirlpool in a stream.

At some time numerous steel wedges were driven into the joints of the great arches carrying the lantern with the idea of tightening them up. These had oxidised, swelling to twice their original size and severely splintering the stone. All these had to be removed and the stonework repaired. In one case two of the voussoirs on the upper side of the arch had been kicked up several inches by this action of the wedges. Sir Gilbert Scott had very carefully examined them, but left them alone.

Of course matters had not improved in the twenty-seven years which had elapsed when we (Oliver, Leeson, and Wood) took it in hand, and it was imperative that something should be done. Small pieces of the displaced stones were cut away to allow strong shores to be inserted to support the voussoir immediately above; the old stones were then rapidly removed and new ones which had been prepared were at once inserted and grouted up with cement. During these works it was found that the old mortar had been completely reduced to dust by attrition due to vibration, and when a rod was inserted into the joints the remains of the mortar ran out like the sand of an hour-glass. The joints were thoroughly washed out, lead wedges being inserted and then grouted in with liquid cement.

I have already referred to the fact that the tower is out of the vertical. The cause of this failure has been attributed partly to intermural burials close up to the bases of the piers, partly to accumulation of water in the foundations or to movements of the subsoil. The bed of sand and water which extends all over Newcastle at depths below the surface varying from two to twenty feet is responsible for the fact of so many of the buildings of the city which have been erected any considerable time being out of the vertical, and in all cases the inclination is towards the river. This is most noticeable in those buildings nearest the river, those in the Close for instance. It is quite perceptible in Dean Street, while as far away as Grainger Street a careful test shows that on the east side the buildings lean back from the roadway, and on the west side they lean forward towards it, showing that the water is constantly carrying away the sand through which it is finding its way to the river—an action much facilitated by the dredging of the bed of the Tyne.

None of these causes will explain the inclination of the Cathedral tower, as although on carefully plumbing it the tower is found to lean 13 inches over to the south, yet the spire is vertical, proving that the movement of the tower must have taken place before the spire was added. This, I think, points to some local defect in the subsoil, causing the south-east pier and south-west angle to sink, which they have done to the extent of four or five inches. Whatever the reason of the settlement was, they must have got on to the boulder clay, as after this movement was once over nothing further has taken place during the last 400 years, as shown by the verticality of the spire. This bed of sand and water is most capricious, being found sometimes almost immediately below the surface and sometimes dipping almost vertically to depths of 30 to 40 feet, as we found during the excavations for the foundations of Milburn House immediately to the south of the Cathedral churchyard.

The dimensions of the tower are as follows: Diameter 36 feet, height from the ground at centre of west side to the cornice 113 feet, from the ground to the top of the angle vanes 162 feet, and to the top of the centre vane 204 feet.

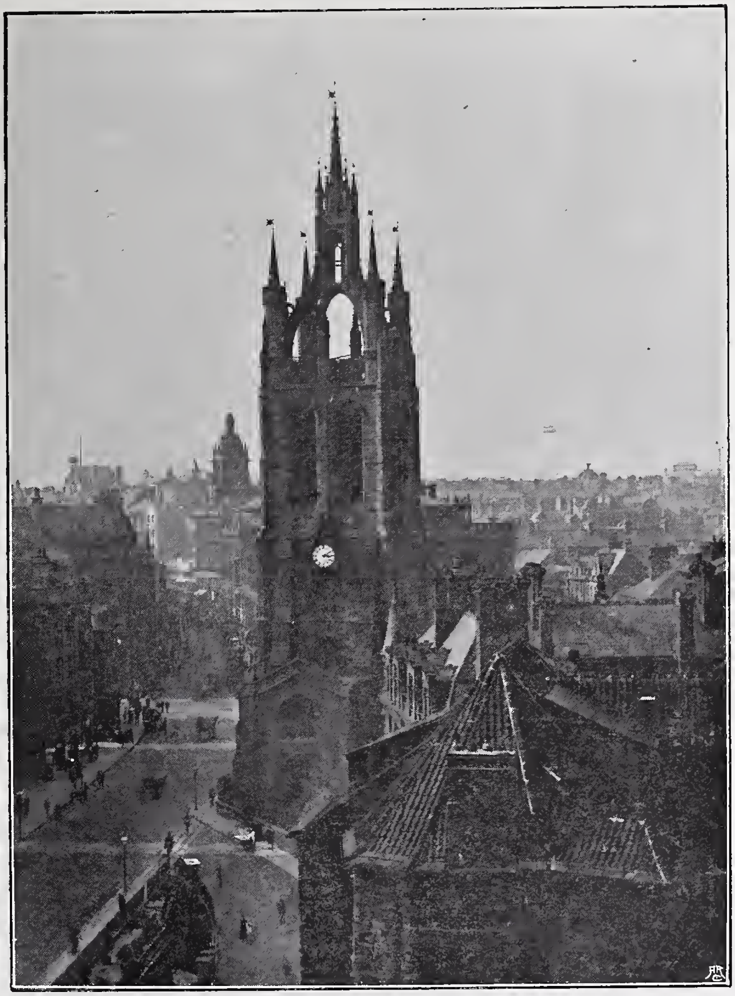
The stone used in the steeple appears to be from Black Pasture, near Chollerford, a stone used by the Romans, and which when carefully selected weathers well: a necessary quality in a structure of such attenuated substance, with the wind blowing through and eddying round it—a condition very conducive to decay of the surface. In some spires it has been found necessary to glaze the openings to arrest this action.

The name of the architect who designed this masterpiece is not known, but he was undoubtedly a man of great ability and artistic perceptions, as testified by the admirable balance of the design, the carefully studied outline, satisfactory from every point of view, and suggesting most conclusively, to my mind, that the steeple was executed from a carefully prepared model, as it is difficult to imagine that the beautiful outline and proportion could have been obtained in any other way.

And here I may remark that although there are captious critics who condemn this steeple as a species of stone acrobatics on account of its dependence on ties, they are fortunately very much in the minority. They should remember that many of the most admired buildings of Italy, notably some of the projecting porches, would not stand were it not for the tie-rods inserted at their erection. Our own Westminster Abbey has tie-rods at the springing of the pier arches from end to end. As for critics like Dibdin, who considered it ill-proportioned and ugly, we can only conclude that their artistic perceptions have not been developed.

The design is obviously the result of careful study and experiment, in which the clumsiness of the earlier examples has been avoided and a work of art produced which has a picturesque grandeur that is unique, and is justly the admiration and pride of the citizens of

Newcastle of the present day as it has been of those of the past. We should be grateful to that worthy Mayor who was the means of saving it from destruction at the hands of the Scots. During the siege of Newcastle in 1644 the general of the besieging army threatened to destroy the steeple unless the keys of the town were given up. Sir John Marley, the Mayor for the time, with ready presence of mind, had the chief Scottish prisoners confined on the top of the tower and returned the general the answer, "that they would upon no terms deliver up the town, but would to the last moment defend it; that the steeple of St. Nicholas was indeed a beautiful and magnificent piece of architecture and one of the great ornaments of their town, but yet it should be blown into atoms before ransomed at such a rate; that, however, if it was to fall it should not fall alone; that the moment he destroyed the beautiful structure he should bathe his hands in the blood of his countrymen, who were placed there on purpose either to preserve it from ruin or die along with it." This was fortunately the means of saving the building from destruction, and during the rest of the siege not a single shot was fired against it.



ST. NICHOLAS' CATHEDRAL.

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ARC

9, Conduit Street, London, W., 30*th Sept.* 1905.

CHRONICLE.

The late Alfred Waterhouse.

The following letters, received by the President from Hon. Corresponding Members of the Institute abroad, have been handed in for publication:—

Institut de France, Académie des Beaux-Arts,
Paris le 9 *septembre* 1905.

Monsieur Belcher, Président de l'Institut des Architectes Britanniques.

Monsieur,—Dans sa séance de ce jour, l'Académie des Beaux-Arts de France, dont M. Waterhouse faisait partie à titre de Membre Correspondant, m'a chargé de vous exprimer ses regrets et ses condoléances pour la perte de l'éminent collègue et de l'artiste distingué que vous avez faite en la personne de M. Waterhouse, dont la mort nous a été connue par la Presse.

Je saisis cette occasion pour vous présenter avec les hommages de l'Académie des Beaux-Arts mes meilleurs souvenirs personnels.

Pour le secrétaire perpétuel,
F. L. Pascal.

Baden Baden, 26*th Aug.* 1905.

To the President and Council of the Royal Institute of British Architects, London.

Dear Mr. President,—May I be permitted to express to you, to the Council, and to my brother-architects of the R.I.B.A. my deep and respectful sympathy on occasion of the death of Mr. Alfred Waterhouse, our regretted Past President and my distinguished *confrère* at the Institut de France?

Ever since I met Mr. Waterhouse at Paris, and saw in London some of his beautiful buildings, I have felt for him true personal sympathy and warm admiration. I used to look up to him as to one of the brightest stars of modern architecture.

In the present day, when so many people, under the pretext of freedom, are turning Art into madness, the departure of this noble artist is peculiarly sorrowful to all lovers of new as well as ancient beauty. In freely opening to architecture new paths of beauty, Mr. Waterhouse always kept in mind those fundamental laws without which lasting beauty cannot be attained.

In doing so, Mr. Alfred Waterhouse proved in the kingdom of Art, too, the necessity of harmoniously uniting two English glories *par excellence*—love of freedom and respect for law.

Believe me, dear Mr. President and Gentlemen, to be your respectfully and very sincerely attached Hon. Corr. Member,

H. von Geymüller.

The funeral of Mr. Alfred Waterhouse took place at Yattendon on Monday, the 28th ult. The coffin was borne from the house on a hand bier by villagers employed on the estate, and was followed on foot by a numerous body of relatives and friends assembled at Yattendon Court from all parts of the country. The service was held in the little village church, which was restored by Mr. Waterhouse at his own cost in 1881, and the interment took place in the churchyard. The Institute was officially represented at the ceremony by the Hon. Secretary, Mr. Alex. Graham, F.S.A.; others of the Institute present including Mr. T. M. Rickman [*A.*], Mr. Thomas Cutler [*F.*], Professor R. Elsey Smith [*F.*], Mr. R. S. Balfour [*A.*], and members of the staff.

Joint Committee on Water Regulations.

The Joint Committee on Water Regulations, consisting of representatives of the majority of the water undertakings of the kingdom, the Royal Institute of British Architects, the British Association of Waterworks' Engineers, and the Plumbers' Company, met on the 15th inst. at the Guildhall to consider the report of its sub-Committee A and the adoption of its draft code of by-laws and regulations and submission thereof to the Local Government Board. Mr. H. D. Searles-Wood [*F.*] was present on behalf of the Institute. The Report stated that much of the information with which the Committee had been furnished related to the varying rate of consumption of water in different towns, the quantity of waste—estimated at upwards of a third of the whole supply—expenses incurred in the detection of waste, and reduction of waste due to the proper adoption of fittings and the efficient carrying out of plumber's work. It was stated that the regulations drawn under the various enactments when seen together presented almost endless variety and absence of plan. The discordance of the regulations indicated the nature and extent of the difficulties with which the general body of authorities had to contend, and their need for extended powers to make by-laws for defined purposes with corresponding regulations sufficiently specified, or, alternatively, for such amendment of the powers of the Local Government Board as would provide for the recognition of such common standards of practice as would represent an irreducible minimum of efficiency and convenience. The existing regulations, so far as local conditions of supply and of use might allow, should be standardised for common use. In order to obtain the views and assistance of the manufacturers of water-fittings, the sub-Committee had called a meeting of the manufacturers of the kingdom, at which general appreciation was expressed of the advantages of standardisation from the manufacturers' point of view. Such standardisation would be also to the obvious convenience of consumers. The sub-Committee had sought to codify the chief administrative provisions relating to the distribution of water for domestic and other purposes, and to establish a standard of practice below which no work should be permitted in the interests both of the water authorities and the public. The report was adopted on the motion of Mr. Alderman Gainsford (Sheffield Corporation Waterworks), seconded by Mr. H. D. Searles-Wood, who observed that architects welcomed the opportunity of taking a part in the framing of regulations more equitable to the consumer and more efficient from the point of view of the water authorities. The draft code was approved with some amendment, and is to be submitted to the Local Government Board, with a request that the Board would consider it with a view to action thereon. A Committee has been appointed to deal with the further standardisation of fittings and materials.

School of Art Wood-carving.

The School of Art Wood-carving, which has been established with a view to encourage the art of wood-carving in this country as a branch of the fine arts, now occupies rooms on the top floor of the new building of the Royal School of Art Needlework in Exhibition Road. The School has been reopened after the usual summer vacation, and it is intimated that some of the free studentships maintained by means of funds granted to the School by the London County Council are vacant. The studentships are awarded by the London County Council and by the Committee of the School to persons of the industrial class who intend to earn their living by wood-carving. Candidates must have passed at least one of the examinations of the Board of Education in free-hand drawing. Preference is given to those who have some knowledge of wood-carving or have passed in other subjects of art. The day classes of the School are held from 10 to 1 and 2 to 5 on five days a week, and 10 to 1 on Saturdays. The evening class meets on three evenings a week and Saturday afternoons. Forms of application for the free studentships and all information may be obtained from the manager. Students connected with the wood-carving trade and professional teachers are admitted at half fees.

Mr. Percy S. Worthington's Paper "Past Tradition and Modern Design."

Erratum.—The description of the Parthenon columns as being "556 diameters high" in Mr. Worthington's Paper in the last number of the JOURNAL [page 595, line 11] is an error for which the printer, and not the author, is responsible. The decimal point, it will be at once seen, has been omitted after the first "5," and the figures should read "5·56."

OBITUARY.

The late Charles Lucas [*Hon. Corr. Mem.*].

It is with the deepest regret that we have to announce the death of Charles Louis Achille Lucas [*Hon. Corr. Mem.*], which took place on the 19th inst. He died at No. 23, Rue de Dunkerque, his Paris residence—familiar to many who have visited him—at the age of sixty-seven. In M. Lucas the Institute has lost its fastest and most loyal friend abroad. He was a member in a very real sense, not only taking an interest in its public functions, but keeping in close touch with its domestic politics and professional aims. For nearly twenty-five years the name of Charles Lucas was a household word among those connected with the profession in this country whom business or study called to France, and in the Secretary's office he was regarded less as an Hon. Corr. Member than as an unofficial Hon. Secretary of the Institute. Only the permanent officials of the Institute can really appreciate the enormous amount of labour, spread over a number of years, which he cheerfully undertook and thoroughly accomplished. For him the word trouble did not exist. The Institute desired such and such information. He supplied it if it cost him a week's work. All will remember the exhaustive Paper he read on the Exhibition Buildings of 1900, but few realise the myriad difficulties he had to overcome in order to present the Institute with a practically complete set of jealously guarded working drawings. For those who went to Paris to seek his help or advice his kindness was inexhaustible. A stranger bearing a line of introduction from the Institute found it an Open Sesame to his heart. Did a member desire to visit buildings of a certain type in France? There was M. Lucas to set him on his way. Did a student want to make measured drawings of closed monuments? It was M. Lucas who unlocked the doors for him. To spend an hour in his company was worth a visit to Paris. His enthusiasm, his indefatigable energy, his *fougue*, showed you the paltriness of difficulties. The tired man of half his years came away young again, invigorated by his magnetic personality. No man more exulted in action. His impetuosity in doing you a kindness swept from your mind the sense of obligation.

There are those who mourn the loss of a personal friend, to whom Paris, unillumined by his radiant vitality, will be a darker place. But here these things cannot be dwelt upon; here we deplore the irreparable loss to the Institute of one who, jealous of its prestige and for ever wakeful to its interests, has done it valiant and invaluable service. Dear colleague in very truth, *ave atque vale!*

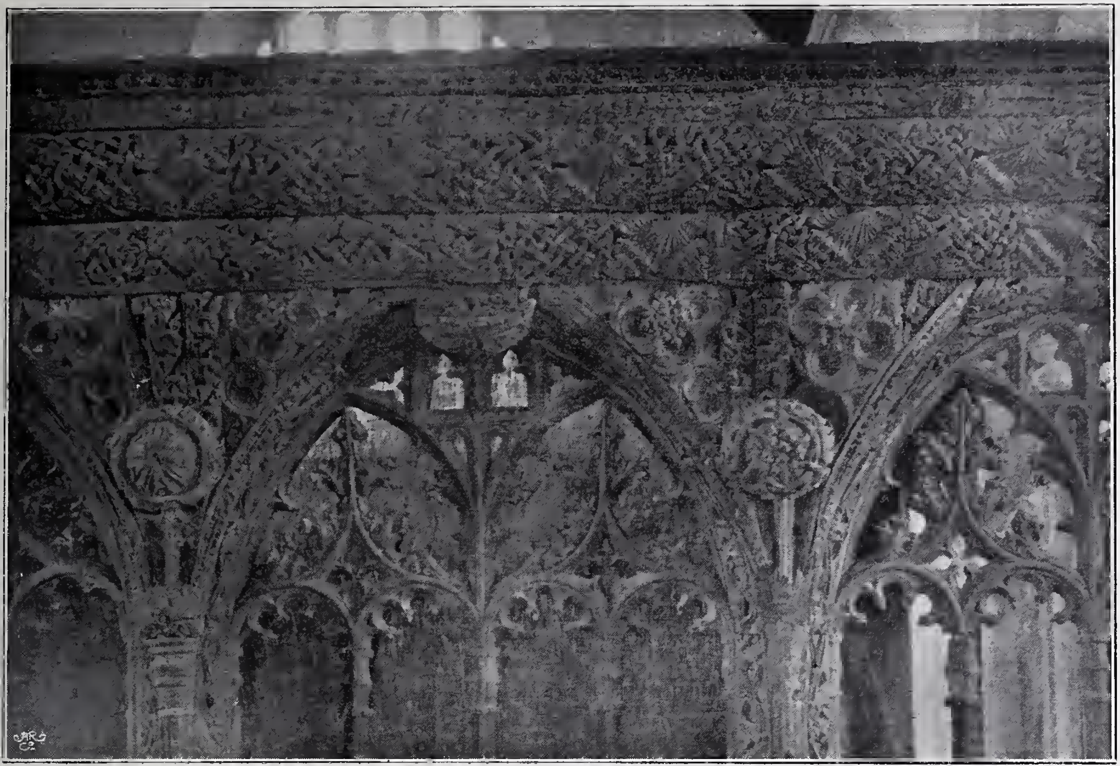
Thomas Edward Knightley [*F.*], of the firm of Messrs. Knightley and Batterbury, whose death occurred on the 4th inst., in his eighty-second year, had been a member of the Institute for nearly fifty years, having been admitted *Associate* in 1856 and *Fellow* in 1860. Mr. Knightley served his articles with Mr. Waller, of Ironmonger Lane, commenced practice in Gough Square, Fleet Street, and removed to Cannon Street fifty-two years ago. For forty-eight years he was District Surveyor for Hammersmith, only resigning the office last year, and for fifty-four years architect to the Edmonton Union Board of Guardians. Among his best-known architectural works are the Cavendish Hotel, Eastbourne, the Queen's Hall, Langham Place, additions to the Church of All Saints, Haggerston, the Church of St. Matthew, Bethnal Green, the new offices of the Edmonton Union, the Commercial Travellers' School at Pinner, the Bakers' Almshouses, Leyton, the offices of the Public Health Department at the Guildhall, the new Birkbeck Bank, and several blocks of warehouses in Milton Street and Aldersgate Street. He was awarded premiums for his designs in the competitions for the City of London School and the Metropolitan Meat and Vegetable Markets, Smithfield. He was honorary surveyor to the committee for the additions to Brockwell Park, Herne Hill, and Brixton, and held the appointment of Surveyor to the Birkbeck Building Society since its foundation in 1851 till last year, when his partner was appointed joint surveyor. A large folio volume on "Stable Architecture" was produced by him in 1862. In July 1901 he took into partnership his former pupil, Mr. Thomas Batterbury [*F.*], District Surveyor for Plumstead and Eltham.

James Weir [*F.*], who died on the 27th ult., aged sixty years, was elected *Associate* in 1874 and *Fellow* in 1882. He was the architect of Hinde Street Chapel, Marylebone; the new Surrey Chapel and schools in Blackfriars Road; the Wesleyan Church, Hayward's Heath, and the chapel at Burgess Hill, Sussex; the alterations and enlargement of the premises of the Davis Gas Stove Company, 202–6, Camberwell Road; the Wesleyan Church in Norman Road, St. Leonards-on-Sea. He also prepared the plans and designs of the Wesley Hall, adjoining the Wesleyan Chapel at Leatherhead, and the Wesleyan Church at Sevenoaks.

Charles Grayson Maylard, of 34, King Street, Cheapside, *Associate*, elected 1874, died on the 26th ult., in his seventieth year. He was architect of St. Mark's Church, Wimbledon, completed in 1888, and of various houses with shops in Queen's Road, Bayswater.

James K. Colling, a former member of the Institute, to whom architects are indebted for such interesting and valuable records of the Gothic Revival in his *Gothic Architecture, Gothic Ornament*, and *Mediæval Foliage*, passed away on the 1st inst., in his ninetieth year. Mr. Colling was elected *Associate* in 1856 and *Fellow* in 1860, but resigned in 1885. He helped to found and was the first Hon. Secretary of the Architectural Association. Born in 1816, he went to school in Devonshire, and his natural talent for drawing being encouraged, he early acquired considerable skill in drawing from Nature, taking special delight in flower-painting. Leaving school, after four years with an engineer he found the work uncongenial and gave it up. In 1832 he entered the office of Mr. Matthew Habershon, and became an enthusiastic student of Gothic. From 1836 to 1840, while with Mr. John Brown, of Norwich, he visited and sketched the Gothic buildings of the eastern counties. The first number of his *Gothic Ornament* appeared in 1846, the drawings being made on the spot from ladders and other inconvenient positions, and transferred to zinc plates by the author himself. The work was completed in 1850. *Details of Gothic Ornament* was commenced in 1852 and finished in 1856. In 1858 he read a Paper at the Institute on "Natural and Architectural Foliage," and in 1865 one on "Art Foliage." In 1865 he published in book form a series of articles and illustrations on "Art Foliage," a second edition of which was called for and appeared in 1878. His last book, *Mediæval Foliage*, was published in 1874. Through the initiation and exertions of Mr. J. Osborne Smith [*F.*], a fund was raised to purchase the original sketches and drawings prepared for these works in order to present them to the Library of the Institute. The presentation was formally made on behalf of the subscribers by Mr. Osborne Smith at the General Meeting of the Institute, 17th February 1902 [Journal, 22nd February 1902]. Mr. Colling carried out several important architectural works, and a list of them is given in the interesting notes of Mr. Colling's career contributed by Mr. Osborne Smith to the Journal of the 22nd February 1902.

The decease is also announced of Henry George Luff, of Devonport, elected *Associate* 1864, *Fellow* 1901, a past President of the Devon and Exeter Architectural Society, which body he represented on the Institute Council in the Session 1902–3.



Portion of Oak Rood-screen, Portlemouth Church, S. Devon. Fifteenth Century.

SCREENS AND SCREENWORK IN THE ENGLISH CHURCH.

By F. Bligh Bond [*F.*].

PART II.—THE REFORMATION PERIOD.—POST-REFORMATION SCREENWORK.

IN the first section of this Paper, which appeared in the mid-October issue of the Journal R.I.B.A. for 1904, the writer endeavoured to trace the development of the chancel screen in England, in the various forms in which it is met with in our parish churches down to the close of the pre-Reformation period.

It is now proposed to deal with the changes that ensued at the Reformation, and to review the subsequent history of the screen, showing the continuity and the authoritative nature of its use in the English Church down to modern times.

But before entering upon its later history it may be worth while briefly to review the typical features of the rood-screen and its adjuncts, the rood-beam and loft, in order to realise their general aspect as they stood in the days immediately preceding the Reformation period. This will be important for the better understanding of the changes which ensued, and that a clearer light may be thrown upon the old traditions which underlie some of the altered forms and practices of later years.

The screen, which in churches of moderate size usually stood immediately to the westward of the chancel wall or arch, was almost invariably surmounted by a loft or gallery.

This, in the earlier type of screenwork, generally projected to the westward, as described in Part I., but in later examples stood centrally over the screen, and sometimes ran back to a considerable depth within the chancel opening. Occasionally, where the chancel arch was low, the wall above it would close in the loft to the eastward side.*

A central pair of doors or gates admitting to the choir space was customary in England, and where the chancel is flanked by aisle continuations similar doors are found in the flanking screens. On each side of the central doors, either against the screen itself or against the east wall of the nave to the north and south of the screen, would be small altars, frequently surrounded to the westward by a rectangular enclosure of screenwork.

The rood-loft above, which was usually approached by a spiral staircase on the north side, was sometimes carried across the nave only; but in other churches, having lofty aisles, it ran the whole width of the church. Sometimes the aisle-screens would support merely subsidiary galleries of approach, as at Dennington, Suffolk [fig. 1].

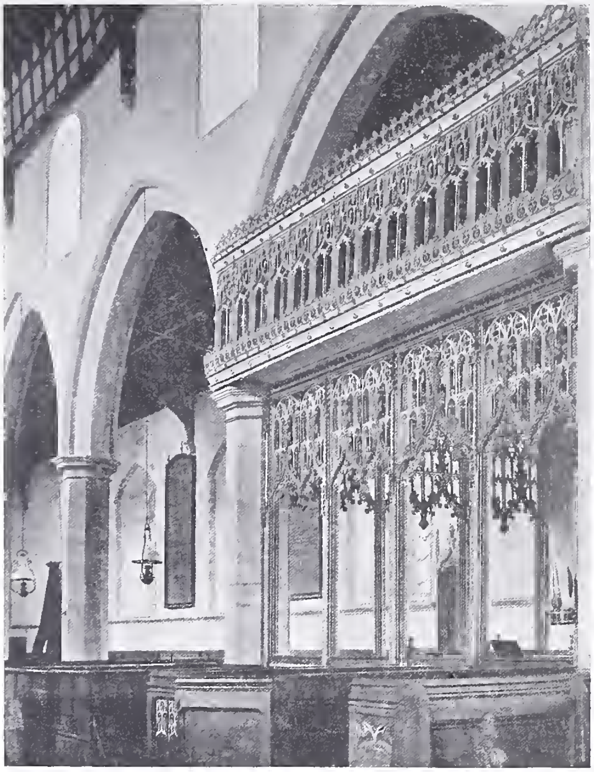


FIG. 1.—DENNINGTON GALLERIES.

The typical rood-loft was distinguished by a balcony or gallery front to the westward, of a highly ornate character, exhibiting the choicest workmanship, and one, generally rather less ornate, to the eastward side. That on the west generally bore upon its surface a series of canopied niches divided by carved standards and crowned by a high cresting, all being of the finest and most delicate design. The niches were often filled with statuary, though surviving instances point to the fact that paintings were often introduced. The latter, of which several series are recorded, usually represent scenes from our Lord's life or from the legendary history of some saint. A perfectly preserved instance fortunately survives at Strensham, Worcestershire, having twenty-three panels containing figures, among which are a series of apostles with English saints, archbishops, and bishops. The rood-loft at Long Melford Church is described as having been on its western side "fair painted with images of the Twelve Apostles," on boards, in a like number of partitions. Another is spoken of by Borlase as standing in his day in the Church of St. Michael's Mount, Cornwall, the panels of which were painted with the emblems of the Passion, and executed, he says, not "inelegantly for former times."

Exeter Cathedral offers an additional instance of a rood-loft with painted panels, but here the paintings, which are of late date, represent scenes from Old and New Testament history.

We have thus in the English rood-loft balcony the Western equivalent of the Greek iconostasis; but whereas in the Eastern churches the iconostasis is a separate thing from the rood-screen, which stands much further to the west, here they are seen in combination.

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* As at Avebury, Patricio, Llanfilo, &c. At Tickenham, near Clevedon, where the chancel wall masked the back of the loft, there is a small hagioscope over the chancel arch, which would enable the occupant of the rood loft to view the Mass, perhaps to control the ringing of the Sanctus bell.

The rood-loft furnished a platform about six feet wide, extra space being sometimes given at the centre by a projection formed to the west or east. Of the former we find instances at Spalding and Coates-by-Stow, suggestive of the use of a pulpit: of the latter Dunster and Montgomery furnish specimens, and these appear likely to have provided space for the small organ, which was part of the usual furniture of the loft.

Above the loft towered the great rood, with its almost invariable accompaniments, the figures of St. Mary and St. John. For the latter, figures of the Four Evangelists were occasionally substituted (Fosbrooke).

The customary place for these had been from early times upon a rood-beam, which was probably at first quite independent of any loft,* and was raised some distance over, or in advance of, the screen. Such beams were in use prior to the fifteenth century. They were sometimes richly carved, and had a good deal of ornamental work attached to them. A few of these beams still survive. One well-known instance is that of Little Malvern. There is another at High Ham, Somerset, on which the stumps of the figures can still be discerned. More frequently the corbels which furnished the support for the ends of the beam alone remain to indicate its position. These sometimes take the form of angels, as at Banwell, where they are built into the chancel arch at a height of some eight or nine feet above the rood-loft floor. In later examples the rood appears to have been brought into more immediate connection with the screen or its superstructure. At Cullompton, for example, there is a beam, enriched with carving and colour, from which the rood was suspended, its foot resting upon an oaken balk, carved into the semblance of a calvary occupying the middle of the rood-loft floor.

Occasionally the rood was attached to the front of the screen. At Brushford, Devon, there remain above the central door three pedestals indicative of the traditional group.

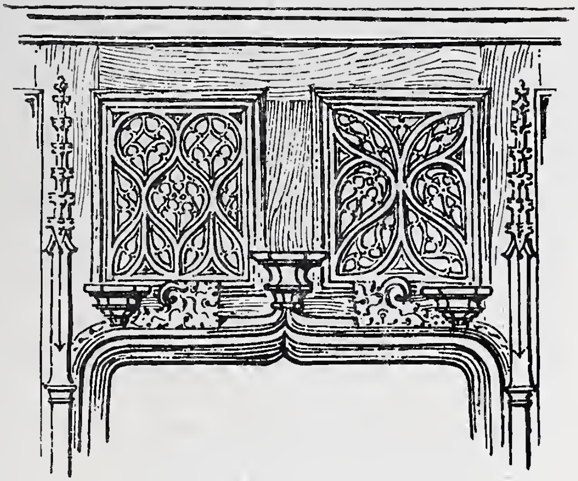
FIG. 2.—BRUSHFORD.

There seems to be evidence that in some cases the upper rail of the rood-loft balcony itself furnished the necessary support for the rood and its attendant images. In many churches of limited height the screen and rood-loft would together attain so large an elevation as to leave little room for an independent rood-beam. Sockets, apparently for figures, are visible in some cases in the upper face of these rails, which also carried a row of basins and pricks for tapers. Such sockets are described at Llanrwst upon the eastern balcony rail, and taper-holders are mentioned as surviving until recent times at Maidstone. Over this rail, on the east side of the loft, would formerly have been seen a partition of close boarding or plaster work enclosing the whole space over the loft up to the crown of the chancel arch or to the roof of the church, as the case might be. This partition, or tympanum, of which there still survive sufficient examples to show that the arrangement was of common occurrence in all parts of England, was generally of close boarding, sometimes perforated with small lights or hagioscopes,* but generally quite closed in, and so placed as to allow space on top of the rail for the carved rood and figures to stand in front of it. These figures were generally not carved all round, but were in about three-quarter relief, the backs being secured by rivets or pegs to the boarding of the tympanum. They seem often to have stood on the rail itself without pedestals of any sort, whilst behind and around them the clear space of the tympanum was painted with a representation of the Last Judgment, forming a background of striking character.†

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* In some churches the stairs giving access to the rood-loft were continued up beyond the doorway to the loft, to another and more elevated opening, which would have been the means of approach either to another gallery or, as would seem most probable, to the rood-beam itself. In large or lofty churches the beam would require separate facilities of access for attention to the candles and the draping of the images, and must have been provided with a narrow platform and rail. Cirencester and Berkeley are among the churches which show a provision for the higher gallery.

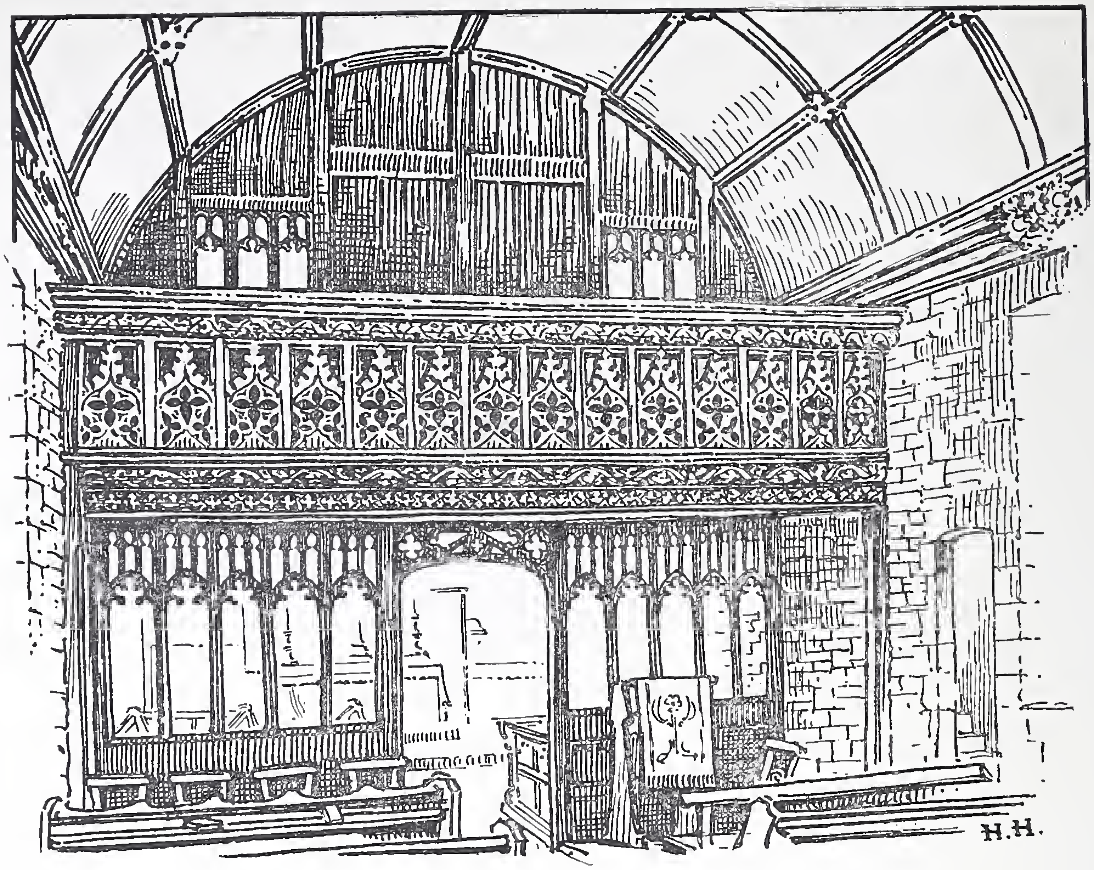

FIG. 3.—BETTWS NEWYDD : ROOD-LOFT WITH PRE-REFORMATION TYMPANUM AND HAGIOSCOPES.

Perhaps the best known instance of this arrangement is that of Wenhaston, which has been well described by Mr. C. E. Keyser, F.S.A. (*Archæologia*, liv.), and in the fine coloured reproduction there given the position of the rood and its attendant images is well seen.

In another example sketched by the writer, from Dauntsey Church, of which an illustration is given [fig. 4], an almost identical arrangement is suggested by the blanks in the painting and the holes for the rivets; but a panel section has here been lost, throwing the whole series a little out of place. From the nave this array of images, with their symbolic background

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* Bettws Newydd screen has a tympanum over it containing two three-light traceried openings. Llanelieu shows small perforations, irregularly placed. At Sandridge the lights were in the solid wall above the chancel opening.

† The writer has treated more fully of these tympana in an article contributed to the Somerset Archæological Society's Proceedings for 1903 entitled "The Tympanum as surviving in Winsham Church"

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richly coloured, must have furnished a most striking object-lesson for the unlettered rustic, for whose benefit these graphic methods of instruction were chiefly provided; and in forming a mental picture of the old chancel partition in its completeness, with all the splendour of colour and display of artificers' work concentrated upon it as upon a point of highest honour, making it a veritable focus of beauty and symbolism, this absolute enclosure of the upper space must have greatly enhanced the dignity of the general effect, shrouding as it did the mysteries of the Holy Place beyond, like the earlier Temple Veil, of which it was the mediæval counterpart.

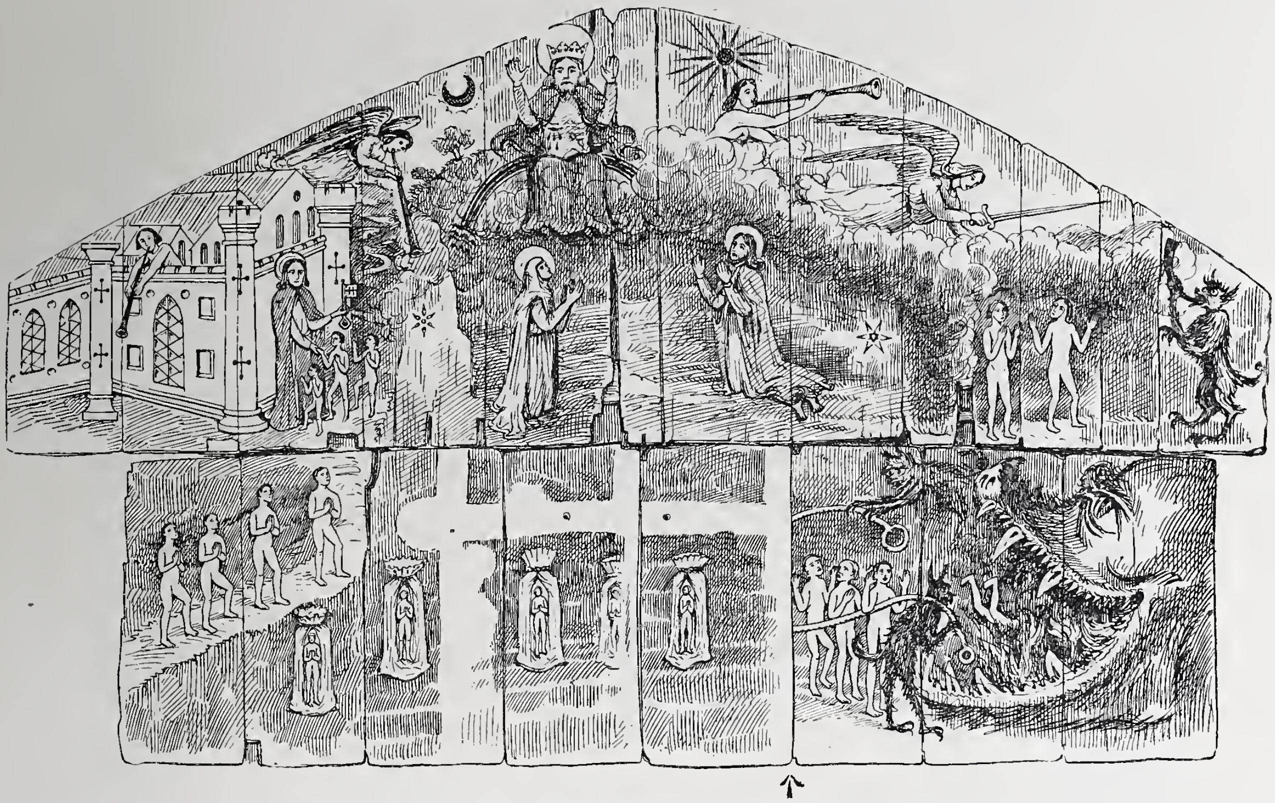

FIG. 4.—DAUNTSEY TYMPANUM.

Much might be said in detail of the uses and appurtenances of the rood-lofts in the time prior to the Reformation; but as the purpose of this Paper is to follow the post-Reformation changes, only those points need be taken in detail which have a heritage in later times, being linked by some continuity of use or form to modern counterparts.

The earlier lofts, following their prototypes the Jubés of the cathedral churches, may be regarded as having fulfilled to a great extent the function of a pulpit. The projecting bays to the westward of some of the lofts, already alluded to, are strongly suggestive of this use; and another fact is significant in this connection—namely, that pulpits on the floor of the church were certainly not common in our churches until the fifteenth century, and were not universally employed until after the Reformation.

But the later rood-lofts seem rarely to have been constructed with any special reference to preaching purposes, and in view of the strength of the evidence at hand it may fairly be assumed that during the fifteenth century this function more and more devolved

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upon the pulpit upon the nave floor, whilst the loft became more exclusively used for the accommodation of the singers and minstrels.

Towards the close of the fifteenth century pulpits would appear to have been erected in increasing numbers, whilst the erection of capacious rood-lofts went on simultaneously. The edict of 1547 calls for the provision of pulpits in those churches which did not possess them. Sixteenth-century pulpits are fairly abundant in certain parts of England, and from the character of the work upon them it may be conjectured that some of these are post-Reformation, since they appear to have been enriched by the spoils of the rood-lofts, if not constructed from their remains.

That organs were commonly placed upon the later lofts we know, and numerous records might be adduced to confirm the theory that their principal use was for canonical singers and for the organist.[*] It was the view of Mr. J. T. Micklethwaite[†] that the spread of rood-lofts in this country may be ascribed chiefly to the increasingly choral nature of the services before the Reformation. In the opinion of the writer this view is borne out most fully by all the facts, which establish it beyond possibility of doubt. Indeed, if proof from antiquity were wanting, the theory would still be well supported by the evidence of subsequent changes and by the custom preserved in the Reformed Church, wherein the musicians' gallery has never ceased to play its part, though nowadays banished from its ancient position.

In rare cases the more ancient use of the loft as a pulpit would appear to have been perpetuated to modern times; and if this has been the custom continuously, then here we have a fact of great archæological interest. In two Devonshire parishes at least (Blackawton and West Alvington) the pulpit stood upon the rood-loft until a comparatively recent date, and the same custom is spoken of in a third parish—Malborough[‡]—though here, as well as at West Alvington, the screens have been broken up and swept away in recent years by an incumbent who has attained the unenviable record of having destroyed no fewer than three of them.

In summarising the uses of the rood-loft in the parish churches of England we find that these may be grouped under three heads:—

1. For the support of the rood and images, with their usual background, the painted Doom above the loft, and for hanging lamps and candles, the loft itself often supporting altars, either of the holy rood or of some saint, and perhaps a calvary at the foot of the cross.

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[*] The following extracts are adduced to illustrate the pre-Reformation use of organs in the rood-loft:—

"1546. Item. Pd. for setting up the rood-lofte x *d*.
,, Pd. to Mr. Hewes ffor mending of
the organs . . . ij. *s*. iiij. *d*."

From the Churchwardens' accounts of Bletchingley.

In the accounts of St. Petrock Church, Exeter, the following occurs:—

"1473-4. (Edw. IV.) To Walter Abraham, for
making a seat in le roode-lofte, when
playing on the organys . . 7*s*. 0*d*."

From the accounts of Louth Steeple, *c*. 1509.

"For setting of the Flemish organ in the rood-
loft by four days . . . . . . xx *d*.

From documents connected with the Beauchamp Chapel, Warwick, collected by Dugdale.

"Richard Bird and John Haynes, citizens and carpenters of London xii Feb. 28, Hen. VI., do covenant to make and set up . . . . finely and workmanly, a parclose of timber about an organ loft ordained to stand over the West dore of the said chapelle according to patterns, all these things to be made, set up, fastened, joyned, and in as good sort as those in the quire of S. Marie's Church in Warwick."

In the *Rites of Durham* mention is made of "the pair of organs over the Quire door" in the eastern screen, and of a "Letterne of wood like unto a pulpit standynge and adjoyninge to the wood organs, over the Quire door, where they had been wont to sing the nine lessons in the old time on principall dayes, standing with their faces towards the High Altar."

From MS. by Roger Martin, Esq., of Melford Place, Suffolk, "quoted in *Notes and Queries*, 3rd series, ii., Aug. 30, 1862, p. 17. Memorandum: There was a fair Roodloft with the Rood, Mary, & John, of every side, *with a fair pair of organs standing thereby*, which Loft extended all the breadth of the church, and on Good Friday a Priest, then standing by the Rood, sang the Passion."

Until lately one or two of the mediæval rood-loft organs actually survived.

One is spoken of at Tong, in Shropshire; another, of which some portions have been preserved, at Old Radnor.

[†] *Archæological Journal*, vol. xxxv., "Parish Churches in 1548."

[‡] *Ecclesiologist*, vol. vi. (1846), pp. 121, 122.

For the exposition of the sacred elements, and for the ritual veiling and unveiling of the figures, for their decoration with boughs and garlands on festal days, and for the maintenance of the rood-lights.

Further, the loft is thought to have been used for the enactment of "Miracle" or "Mystery" plays, whilst upon its gallery front were displayed pictures of a sacred or legendary character illustrating incidents in our Lord's life and passion, or in the lives of the saints, together with minor statuary or figure paintings and religious emblems. Most of the foregoing uses of the rood-loft seem to have been condemned at the Reformation, and the ornaments abolished in their entirety, the sole feature whose removal does not seem to have been expressly ordered being the great painting of the Doom. This was a feature customary in our Church from very early times, and distinct in its origin. Probably these representations of the Doom were much debased in the sixteenth century, so that there would have been a real gain to devotion by their removal (*Ecclesiologist*, xiii. p. 102); but the principle would appear to have held good, and we can trace a continued use of such paintings in post-Reformation times (*vide infra*).

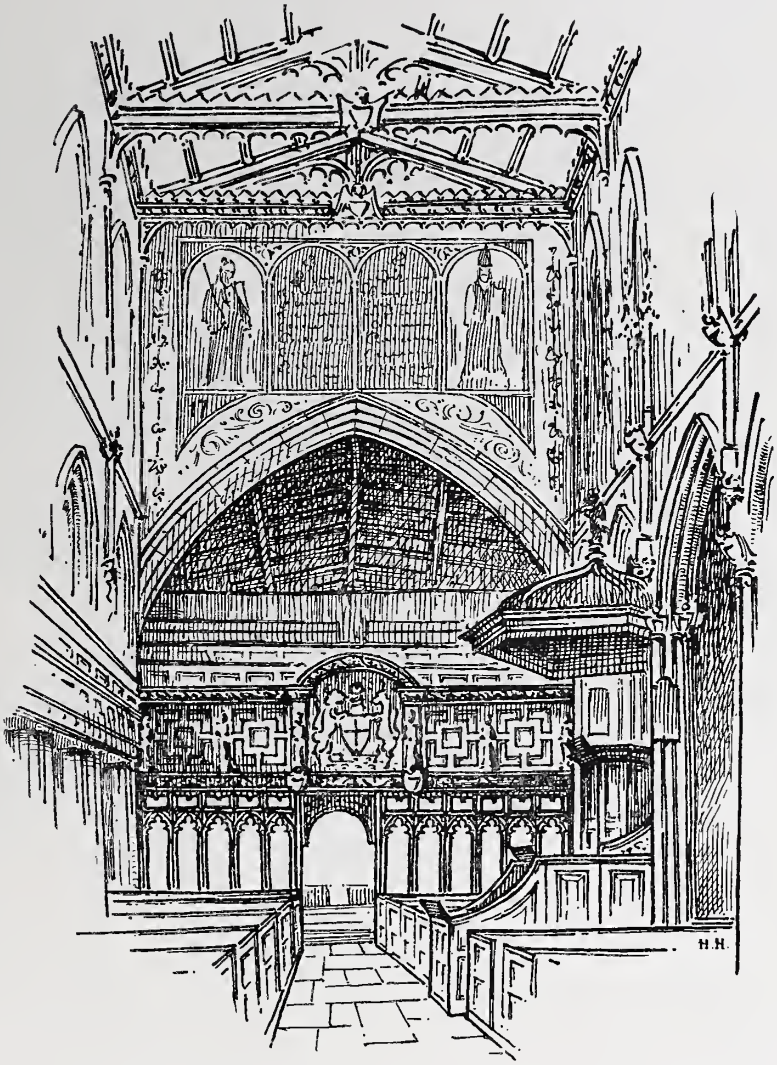

FIG. 5.—ST. MARY'S, TAUNTON: ROOD-SCREEN WITH POST-REFORMATION GALLERY.

2. For the purpose of a pulpit, the delivery of sermons or exhortations, the reading of the Epistle and Gospel and other lections, letters of communion, bishops' pastorals and benedictions. Such uses have never been specifically condemned, but have fallen into desuetude since the Reformation, the use of the loft as a pulpit surviving only as a faint tradition, and in very rare instances.

3. For the purpose of a singers' and minstrels' gallery, with seats and desks for the choristers and space for the organ. This use was permitted to continue at the Reformation, in spite of the orders for the taking down of the rood-lofts, and survived in many of our country churches until the Victorian era.

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Before considering this important point in detail, let us for the sake of chronological exactness view the changes brought about by the Reformation in their proper sequence as affecting the subject of this essay.

The great step taken in King Henry VIII.'s reign, which heralded the Reformation, was the suppression of the monasteries, and this resulted in the speedy dismantling of many noble churches, which were either pulled down, left to decay, or secularised. In consequence of this, a great deal of the heavier and less intrinsically costly furniture, such as the carved screenwork which had graced the monastic churches, was removed by pious hands and reinstated in the parish churches. Thus we find quite a large number of cases in which the chancel screen of the parish church is reputed to have come from some neighbouring abbey or priory at the Dissolution; and although tradition doubtless does not always speak correctly, there is probably truth underlying a number of these reports. It has been suggested that the origin of this idea may be the fact that much of the fine carving was done by artists attached to the monasteries as "*conversi*," or lay brethren.*

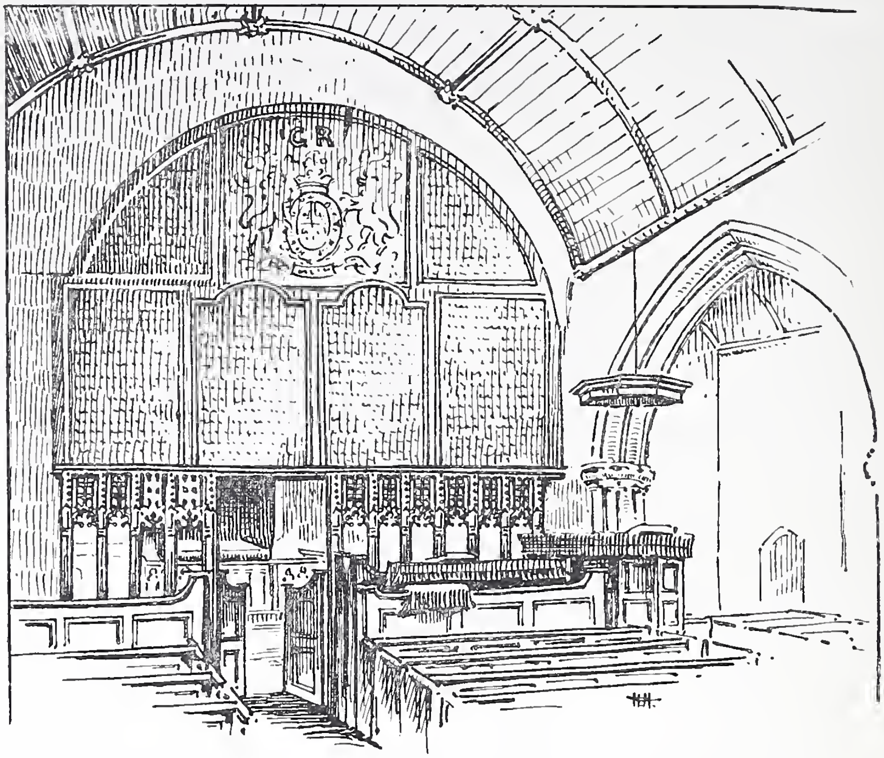

FIG. 6.—PARRACOMBE: SCREEN AND POST-REFORMATION TYMPANUM.

At Aysgarth the screen of exquisite workmanship is said to have been brought from Jervaulx Abbey. Llanrwst screen, with its rood-loft, and the beautiful screen and stall-work at Montgomery are the subjects of a similar report. That of Brushford (Dulverton) is known to have come from Barlinch Abbey. Many churches possess screens which obviously do not belong to them—this often enough the result of vandalism on the part of churchwardens in a neighbouring parish, and a laudable wish to save beautiful work which has been rejected by its unappreciative owners. But others again have not the appearance of rood-screens proper, either in scale or proportions, and these may well have been rescued from the dilapidations of a neighbouring abbey.*

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* As, *e.g.*, the screen at Abbotskerswell, Devon, said to have been the handiwork of the monks of Sherborne.

Until the year 1547, which was the critical year for our parish churches, no great change took place in their interiors. The burning of lights before images had been forbidden by a decree of 1538, which ordained that "onely that light that commonly goeth about the crosse of the church by the Rood loft, the light before the Sacrament of the Altar, and the light about the sepulchre" should be suffered to remain; and in 1547 all lights were forbidden save two upon the altar before the Sacrament, "which," say the King's injunctions, "for the Signification that Christ is the very true Light of the World, they shall suffer to remain still." By the same decree all images which had been abused by pilgrimage or idolatrous worship and offerings were to be destroyed, and all pictures or other representations of feigned miracles

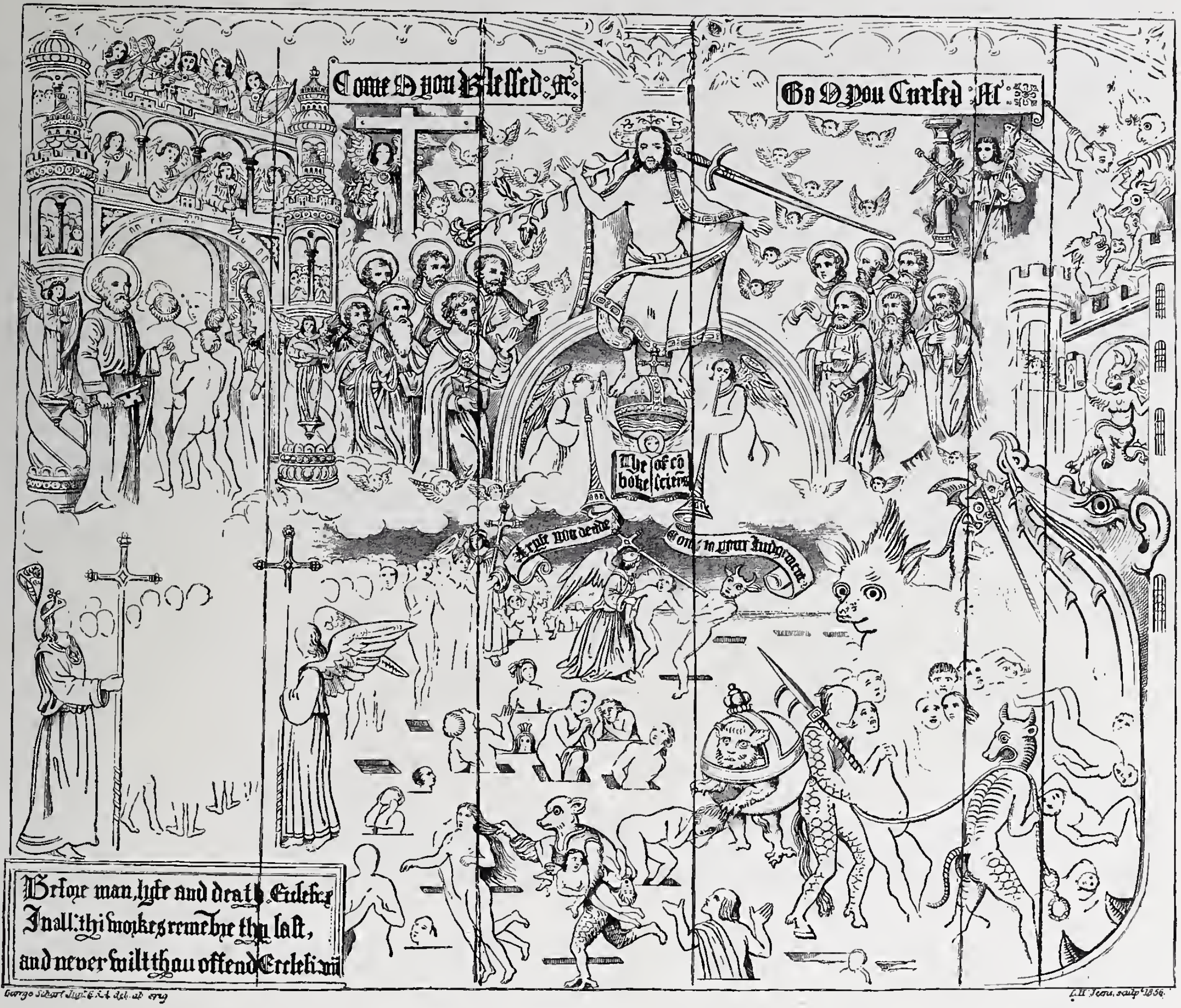
Come ye you Blessed &c.
Go ye you Cursed &c.
The boke of cōscience
Aryse you dede
Come to your Judgement
Before man, lyfe and death. Eccles. xv
In all thi workes remembre thy last,
and never wilt thou offend Eccles. vii
George Scharf Junr F.S.A. del. ab orig
sculpt 1856.

FIG. 7.—GLOUCESTER OLD "DOOM" PANEL.

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* The screen at Alford, Somerset, is a case in point. Its origin is unknown to the writer, who has always suspected it to have belonged to Glastonbury Abbey.

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obliterated. Shortly afterwards a further decree was issued by the King that all images without exception should be removed and taken away.

Accordingly we find that there ensued a general demolition of roods and images. On September 5, 1547, according to the Chronicle of Grey Friars, the images at St. Paul's were removed at the commencement of the King's visitation, those at St. Bride's and other churches following: "and so alle images pullyd downe thorrow alle Ynglonde att that tyme, and alle churches new whyte-lymed, with the Commandments written on the walles."

The royal arms with their supporters, the lion and the Tudor greyhound, now first made their appearance in a conspicuous position in the churches.

The great rood at St. Paul's, with the images of St. Mary and St. John, was removed on November 17 by night, and at the same time all roods and attendant images remaining in the parish churches were pulled down and sermons delivered against them.

The removal of images in Edward VI.'s reign may have been the cause incidentally of the destruction of some of the carved frontals of the rood-lofts; but these were not yet themselves condemned.

There are records of the erection of numerous new screens and rood-lofts in the later years of Henry VIII.'s reign. In the West Country especially many fine specimens of screenwork still survive which may be referred to dates between 1530 and 1547.

The noble choir screen which once adorned the cathedral church of Bristol was the gift of a citizen, Thomas White, whose will is dated 1542, and was erected between 1543 and 1547. It bore on its front a series of statues in finely carved tabernacles, the arms of King Henry and Prince Edward's badge being placed within the spandrels of the great doorway.*

So late as 1546 we find in the churchwardens' accounts for Bletchingley the following:—

"Item:	for setting up the Rood lofte . . .	x *d.*
	nayles for the same	ij *d.*
	for mending of the organs	ij *s.* iiij *d.*"

Also:	"for paynting the qwyer and the Rood loft, the King's Arms, the outer aisle adjoining the qwyer etc.	vi £ xv *s.* ij *d.*"

Later in the same year, and following the Archdeacon's visitation, this entry occurs:—

"Item:	Paid to the labourers for pulling down the Rood	xiiij *d.*"

As late as 1550 there is an entry in the Ashburton parish accounts referring to the repair of the rood-loft, and in the accounts for St. Martin's parish, Leicester, for 1551 (5 Edward VI.) the following occurs:—

"Paid for painting the Rood loft . . . 40^{s}."

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* This beautiful work being a source of pride to the citizens of Bristol, we can understand how loth they would have been to have it mutilated, and their unwillingness to comply with the rule calling for the removal of its ornaments is evidenced in the letter written by Elizabeth's Commissioners in December 1561 to the dean and chapter wherein the continued existence of these tabernacles is complained of (see Bloxam, *Companion*, p. 110, footnote). After the removal of the tabernacles and images had been effected, paintings of the twelve minor prophets were inserted in their stead. The royal arms and badge above referred to are still preserved, and have been incorporated with other fragments in the newly constructed side screens to the choir. The fine and deeply moulded arched head of the great doorway was to be seen until a few years ago in the cathedral grounds, where it was preserved, but has recently disappeared, having (so the writer is informed) been sawn up by order of one of the cathedral clergy to provide stone for some other purpose.

The removal of the ornaments from the rood-loft was accompanied in some cases by the painting of the Scriptures on the loft, but in others the alternative course was adopted of covering the surface with a cloth. Thus we find in one case a charge for "xxv ells of cloth for the frunte of the rood loft whereon the Commandments were written," and at Smarden, Kent, "a cloth to hang before the rood loft to deface the monuments, vj tabernacles that wer yn the same roode lofte written with scriptur and the Kynges Armes sett yn the mydst of the same cloth."

Wandsworth parish accounts supply us with an instance of the removal of a rood-loft in 1552, the year which witnessed the publication of the Second Liturgy of Edward VI., viz.—

6 Edward VI.

"Paid for pulling down of the Rowde lofte and setting up of the scriptures that is to say the creacion of the worlde, the coming of our Saviour Xt, the Beatytudes, the X Commandments, the XXI articles of our belief, and the Lord's Prayer, the Judgement of the World, the Kinges Majesties Arms . . . . iij £ xij *s.* vj *d.*"

The latter years of this king's reign witnessed the pillage and confiscation of the more valuable contents of the parish churches; but the chief visible changes consisted in the removal of the images, frescoes, and altars with their reredoses and sculptured histories.

This spoiling of the churches must have been a terrible blow to the people, who were still at one with their Church. In our days, when a man's life and his home are inviolate and the standard of domestic comfort is immeasurably raised; when self-reliance has taken the place of child-like dependence; when, too, there is so universal a diffusion of popular art and education, and means of recreation or entertainment are provided on all hands, it is difficult to realise how much the parish church with its beautiful and stately adjuncts and impressive services and ritual must have meant to the humble villager or townsman of those days. Having nothing in his rude home save the simplest necessaries of life, all his instincts and cravings for the ideal or the beautiful would be focussed in that building, which was the centre of corporate life in his community, social as well as religious. Feeling himself the child of a community, in close family relation with his fellow parishioners, he would be sensible of a personal share and interest in the building and its equipment. In the stress of a rough life it would be there that he would go for peace of mind or strengthening of spirit. Its beautiful enrichments with their symbolic significance or graphic histories would be the source of inspiration, guidance, and discipline, and in the shadow of its venerable walls he might for a while find refuge from the sordid and the commonplace, and a sanctuary in turbulent times.

The accession of Queen Mary in 1553 was immediately followed by an attempt to restore the ancient features of our churches to the state in which they were before 1547, and evidence is plentiful of the zeal with which this intention was carried into effect. New roods and images were carved and set up to replace those destroyed. To give two instances only, at Minchinhampton and at St. Helen's, Abingdon, roods were re-erected within a year or so of the Queen's accession. It is stated by an old writer that "the carvers and makers of statues had a quick trade in roods and other images that were to be set up in churches." "Everything," says Pugin, "was done to remove the objectionable things that had been introduced during Edward's reign. The texts of Scripture that had been placed on the screens and walls were washed out, and in one instance the cloth painted with the Commandments which had hung before the screen was taken down and cut into surplices."

In 1554 we find in the records of Ashburton parish the entry:

"Strykynge oute of the Scriptur upon the Rode Lofte . . . vj *d.*"

And we may easily infer the nature of that which took its place. So strongly did the West Country people cling to their ancient faith and ritual that the changes in Edward's reign had contributed largely to the rising which took place in 1549. The reaction in 1554 must have been most welcome to them.

In Bishop Bonner's visitation articles of 1554 we find, Article IX. :—

"Item. Whether there be a crucifix, a rood loft, as in times past hath been accustomed."

And in the Articles of Cardinal Pole's Visitation in 1557 :—

"Whether they have a rood in their church of a decent stature, with Mary and John, and an image of the patron of the same church."

The churches were inspected by Dr. Story to ascertain that each one had the rood-lofts supplied, the crucifixes "to be plac't with the images of our B. Lady and St. John, the one on the right hand and the other on the left; and the King's Arms with a lion on the one side and a dragon on the other side to be removed from the altar, and to be set in a place more convenient."

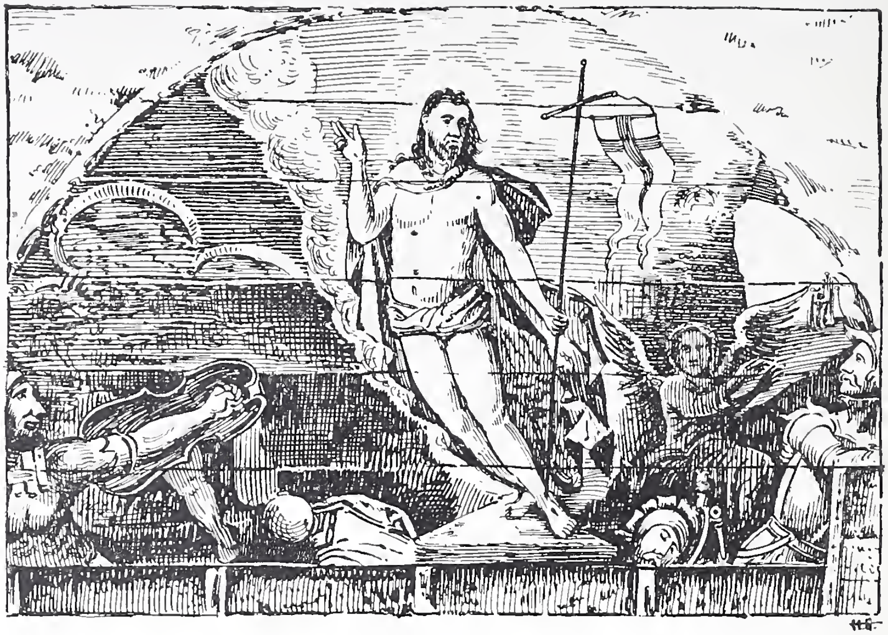

FIG. 8.—BRIDESTOWE: PAINTING FROM THE TYMPANUM (POST-REFORMATION).

The royal arms were, as may well be understood, peculiarly obnoxious to Catholic instincts, and to see them placed over the altar must have appeared the direst profanity. Dr. Martin in conversation with Archbishop Cranmer in 1556 speaks of the order for these as "Doune with the arms of Christ, and up with a lion and a dog."

Other instances given by Bloxam show the bitterness with which this emblem of the State usurpation of ecclesiastical headship was regarded (*Companion*, iii. pp. 114–15).

The natural reaction from the religious persecutions which disfigured Mary's reign and the return of numerous exiles from abroad infected with a militant Calvinism created a force potent for change, destined to find expression in Elizabeth's reign, but this time through an altered temper and habit of the people themselves rather than through State interference. Protestantism began to be firmly bitten into English life, and innovations hostile to the old order of things became more spontaneous, and were less unwillingly accepted.

Elizabeth in her first year set to work to re-establish the order of things as it existed in the second year of Edward VI., and thus preserved the continuity of the Church, though the Puritan or Calvinist faction tried hard to develop a Presbyterian system within the Church, and a spirit of disaffection was developed, fostered by unordained men—the pioneers of the political dissenters of later days. The Queen was actuated by much real reverence for the fabric and ornaments of the churches, as her decree of 1560 bears witness. She had a horror of sacrilege. But almost simultaneously with the commencement of her reign we find these objects deemed superstitious, such as the roods and images which had been erected in Mary's reign, were once more to be destroyed. In St. Margaret's, Westminster, the rood was removed in 1559, but the rood-loft, which had been built at great expense in 1519, was allowed to remain in its original place until the following year, when it was reformed. Its "new reforming" was a considerable charge to the parish. The work was accomplished in 1560, and was accompanied by charges for "new organs in the Pulpitte."

"In this year," says Henry Machyn, "those parishes which had been backward in removing the relics of idolatry were now compelled to do so." Stone altars were removed and tables of carved wood substituted. In this year also ("the ij yere of Queen Elizabeth") "was alle the rood loftes taken down in London, and wryghtynges written in the same place."

At St. Dunstan's-in-the-East the parishioners and churchwardens received from the Archbishop a letter concerning the pulling down and "translation" of the rood-loft. And it is on record that the parish committee agreed that it should be taken down and *translated* at the discretion of the churchwardens.

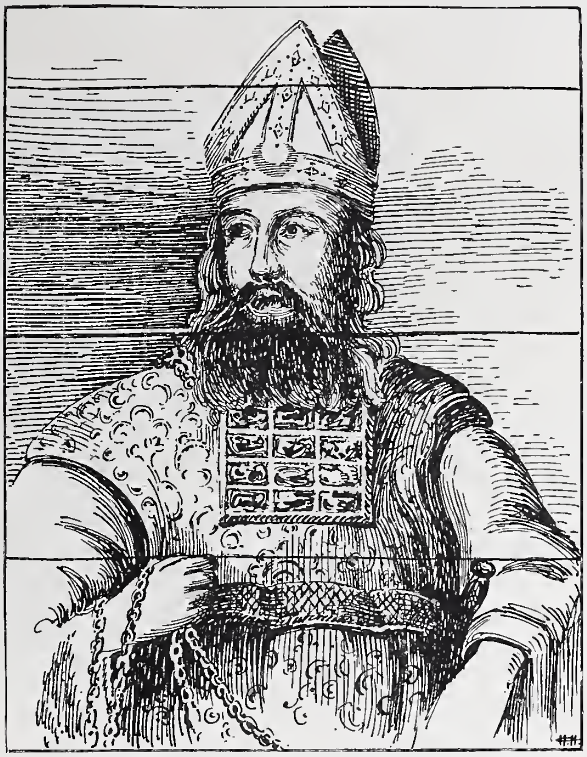
FIG. 9.—BRIDESTOWE: FIGURE OF AARON FROM THE TYMPANUM.

In 1561 (3 Elizabeth) an order was issued which throws further light upon the intentions of the Queen and her advisers with regard to the manner in which it was proposed to deal with the rood-lofts and screens.

"Imprimis, for the avoiding of much strife and contention that hath heretofore risen among the Queen's subjects . . . for the *using* or *transposing* of the Rood Lofts, Fonts, and steps within the quires and chancels in every parish church.

"It is thus decreed and ordained *that the rood lofts as yet being at this day aforesaid untransposed* shall be so altered that the upper part of the same with the soller be quite taken down, unto the upper parts of the vautes, by putting some convenient crest upon the said beam towards the church, with leaving the situation of the seats (as well in the quire as in the church) as heretofore hath been used.

"Provided yet, that where any parish, of their own costs and charges by common consent, will pull down the whole frame, and re-edifying the same again in joiner's work (as in divers churches within the city of London doth appear), that they may do as they think agreeable, so it be to the height of the upper beam aforesaid.

"Provided also that where in any parish church the said rood-lofts *be already transposed*, so that there remain a comely partition between the chancel and the church, that no alteration be otherwise attempted in them, but be suffered in quiet. And where no partition is standing, *there to be one appointed*."

Not once only, nor twice, were such orders promulgated; and indeed there would appear to have been considerable difficulty in persuading or enforcing the rule in scattered parishes, for in the visitation articles of Archbishop Parker in 1569 we find inquiries made as to whether the rood-loft was pulled down according to the order prescribed, and if the partition between the chancel and church was kept.

Again in 1571 the direction is given in the injunctions of Archbishop Grindal that "all rood lofts are to be altered," and once more in 1576 Grindal enjoins that the inquiry to be made "Whether your Rood Lofts be taken down and altered, so that the upper part thereof with the soller or loft be quite taken down unto the cross beam, and that the said beam have some convenient crest put upon the same?"

Even so late as 1573, and in so populous a centre as Norwich, the vigilant Bishop of that diocese was informed that there was a "Popish Rood loft still remaining in St. George's church in Norwich, with the fashion and order as was in the time of popery.

"This, many good people, and especially one Morley of that parish, objected to . . . others were as fond of it" (Strype, *Life of Archbishop Parker*, p. 450).

If this was the case in a place like Norwich,* how much greater must have been the difficulty of procuring the removal of the lofts in more distant and rural places, especially in the West Country, where Catholic feeling and tradition had preserved its vitality! Instances of defiance of the archiepiscopal mandates seem to have occurred in such places as Chudleigh and Ashburton, in the former of which the loft was first pulled down in 1562, and the process had to be repeated in 1577, and in the latter case first in 1563–4, and again in 1579–80. Others seem to have escaped destruction, or to have been surreptitiously re-erected prior to 1583, in which year the Rev. Thomas Barrett commenced his visitation of the Archdeaconry of Exeter (6th April 1583) by inquiring "Whether all images and other superstitious things were clean defaced, and Rood lofts taken down. If not, thro' whose fault it is so." The latter clause seems to indicate a determination at last to punish the offenders.

From the foregoing it appears very clear that the removal of the screens themselves was never thought of by the reforming clergy. On the contrary, they seem always to have been studious to preserve the chancel partition, regarding it as a necessary feature, and ordained its restitution where removed. It is evident also that the "taking down" of the rood-lofts did not necessarily, and was not intended to, imply their complete destruction.†

The terms employed in these Elizabethan injunctions when speaking of what is to be done to the rood-lofts should be carefully noted. We find the churchwardens are not instructed in definite or unmistakable terms to destroy the lofts, but to "alter," "reform," "transpose," or "translate" them. These words seem obviously to denote one of two things, viz. either that the lofts, as lofts, were not objected to, but that the gallery fronts, with their carved tabernacle work, were to be taken down simply for the purpose of removing all objectionable features, and their place to be taken by some inoffensive substitute of "joiner's work" which would enable the platform to be used with security as a minstrels' gallery or "pulpitum" as in former times; or that it was desired that the lofts should be translated, *i.e.* removed, to a position more consonant with Reformed Church principles.*

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* A very much more stringent interpretation was placed upon the injunctions of 1561 by some of the East Anglian people. Puritan feeling at this comparatively early date was very strong in the Lincolnshire district. Peacock (*English Church Furniture*) quotes many records to this effect. At Ewerby the rood-loft was taken down in 1561, and with the "bordes" desks were made. At Great Gonerby, in the first year of Elizabeth's reign, the rood-loft was converted into stalls and the rest was burnt. Here the zeal of the laity certainly outran the royal instructions. At another church the wardens were directed to take down their rood-loft "and superstitious *dome*," A.D. 1572.

† The authors of the *Hierurgia Anglicana* remark as follows: "It has been generally but more hastily assumed that rood lofts are condemned by the Anglican Church. It must be borne in mind that the injunctions for taking them down referred not to the lofts, *quoad* lofts, but to the crucifixes which surmounted them," and they proceed to argue that the loft is of the nature of a pulpit, being the Western equivalent for the Analogia, or Epistle and Gospel tribunes found in the Greek Church. "Now this use," they say, "is sanctioned even by prelates of the Geneva school. Grindal (1571) orders that the Communion Service should be read at the altar, all except the Epistle and Gospel, which are to be read *from the pulpit*."

In the case of St. Margaret's, Westminster, it will be noted that the record describes the loft as having been "re-formed" for use as an organ-loft, a new organ being added at the same time.

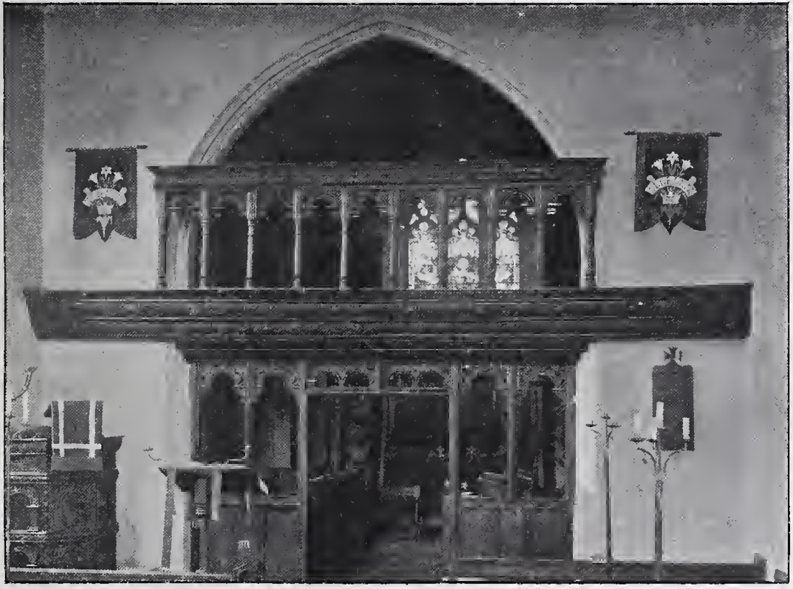

FIG. 10.—RODNEY STOKE SCREEN.

Instances of the entire transposition of the lofts are fairly numerous, and there remain to this day a number of rood-loft balconies or gallery fronts which have been thus dealt with; and these have been removed to the west end of the church.

An examination of the screens remaining in our churches shows that the orders of Archbishops Parker and Grindal were in the majority of cases obeyed. Thus we commonly find that all the ornamental superstructure was taken down as far as the beam over the vaultings of the screens, which was furnished with a carved cresting, the platform of the loft being in many cases preserved though frequently dispensed with, in which case the vaultings also disappeared and a flat screen only remained. Occasionally the staircase to the loft was stopped up in Elizabeth's reign.

At the same time the choir and organist were located at the west end of the church, where a gallery or loft was constructed for their use, the old framework of the rood-loft, with much of its characteristic ornament, being frequently utilised for the purpose.

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* By the terms of the order of 1561, which is for the *using* or *transposing* of the rood-lofts, it seems clear enough that this choice was left to the parishioners.

Such entire transportation occurred in the case of Flamborough and Strensham. The former loft, after a sojourn of many centuries at the west end of the church, has now been restored to its original position over the screen, and it is a truly magnificent piece of work. The latter was transposed entire, figures and all, in Elizabethan days, and yet remains so.*

At East Brent, Churchstanton, and elsewhere in Somerset are finely carved panelled galleries in the west, which would appear to have had a similar origin.

That of Pennant Melangel is a notable instance in Wales.

But in a number of cases the rood-loft was retained as a singers' or minstrels' gallery, and the organ placed thereon, and this continued until modern times. Many, such as Chedzoy, have only suffered removal at a comparatively recent date. This fine loft was transposed to form a western gallery in 1841 (*Ecclesiologist*, vol. iv., p. 197). The records of nineteenth-century "restorations" are full of instances of the removal of these.

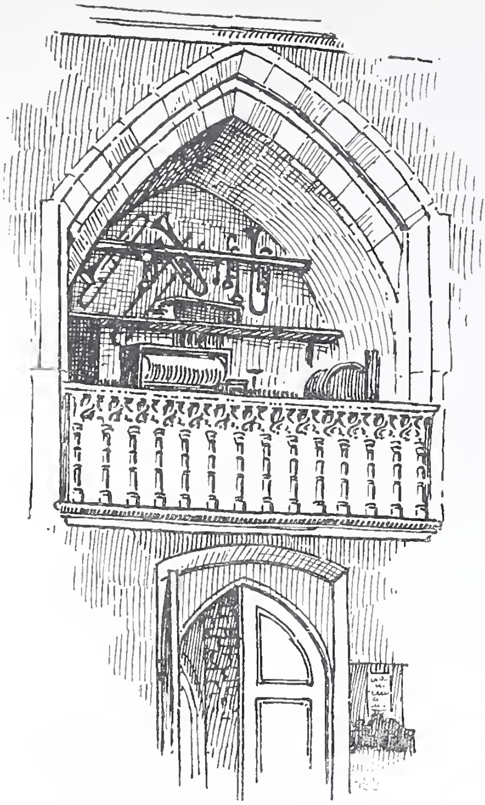

FIG. 11.—PORTISHEAD MINSTRELS' GALLERY.

Others, especially in the West Country, retained their ancient gallery fronts, which only disappeared when at last worn out. Some of these were replaced by Jacobean panelling, as in the case of Cirencester, whose beautiful gallery stood over the screen until Sir Gilbert Scott cleared it away, and St. Mary's, Taunton, of which a sketch is given [fig. 5], showing the curious, but not unusual, arrangement of a large pew placed in more modern days upon the screen, filling the chancel arch, and facing towards the nave so as to obtain that great desideratum of Protestant worship, a good view of the pulpit. Cullompton, Totnes, Tiverton, and Uffculme are amongst those which were retained in Devon, and in which a Georgian framework took the place of the older one.

At Wigan the old organ gallery over the rood-screen was removed in 1847; that of Manchester, with its old organ, in 1860.

Such instances as these illustrate the practices arising from the instructions of the Elizabethan archbishops, which, as we have seen, left two alternatives open to parochial authorities in their dealings with the rood-lofts.

1. To reform them by removing all superstitious features and ornaments, leaving a plain surface for the Scriptures &c. to be written on.
2. To "translate" or "transpose" them probably to the west end of the church, there to occupy the position afterwards recognised as the proper one for a singers' gallery.

The extreme care that was taken by the authorities to prevent any misinterpretation of instructions which would involve the removal of the screens themselves is strikingly evident in the sixteenth-century injunctions. Not only were these "comely partitions" to remain, but if removed new ones were to be appointed. They represented an essential feature of Church arrangement sanctioned by the highest and most ancient authority. There is every evidence, too, that the Reformers intended to maintain the traditional idea of a complete veil or barrier between nave and chancel, and this we see in the preservation of the tympanum of the rood-screen.

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* Merevale furnishes another instance of what appears to be a singers' gallery of fifteenth-century workmanship, with a large central projection for the organ. This is now at the west end of the church; but it is not in its original place, and has been cut clean in half to fit its present cramped position. The ornamental detail is returned around the ends, showing that it originally had its extremities exposed, and in the north end is a narrow door of access.

The origin and history of this solid barrier in our churches of the pre-Reformation period is dealt with by the writer in his foregoing contribution (Journal R.I.B.A. 1904, pp. 543–4), and reference has also been made in the present Paper to the tympanum with its painting as it appeared in Tudor days. It remains to be shown that this feature, though no longer used for the display of superstitious paintings, persisted after the Reformation. Where the rood-lofts had been removed, in obedience to the general order, a tympanum of lath and plaster was often constructed vertically over the screen, and on this it was customary to paint the royal arms with texts of Scriptures &c.

Thus at Sandford, Oxon., the upper part of the chancel arch was boarded up and painted with the arms of Elizabeth (1602).

Prior to 1604 the Ten Commandments were ordained to be exhibited on the east wall, and in the letter to the Dean and Chapter of Bristol, dated 1561, above referred to, the instruction is "upon the walle of the East end of the quier whear the comm̃ table usually doth stande, the table of the commandments to be painted in large characters" &c.

In the spring of 1604 (new style) King James authorised the publication of new canons, 141 in number, amongst which was one ordering that the Commandments should be set upon the east wall of every church, where the people might best see and read them; whilst other chosen sentences were also to be written up in convenient places.

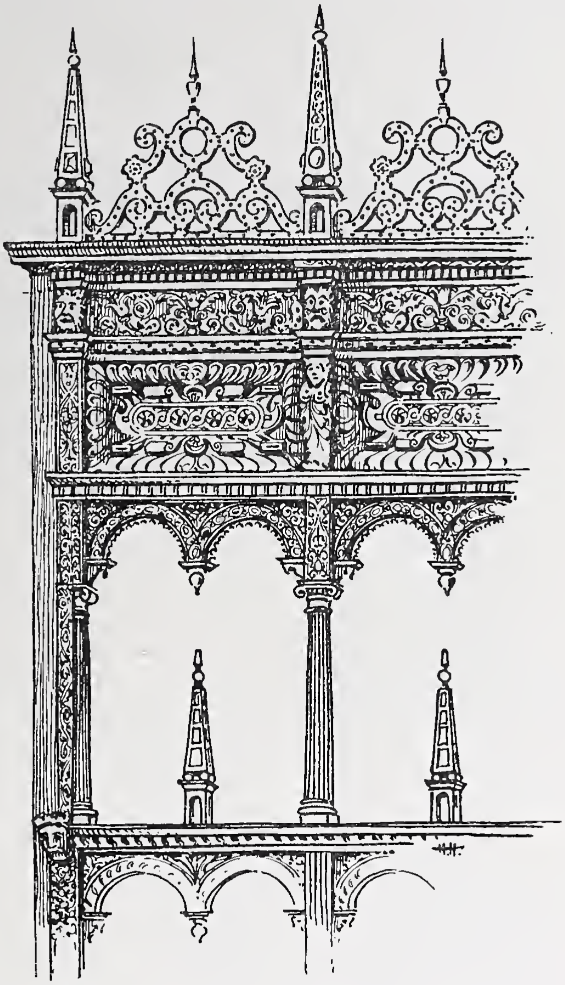

FIG. 12.—CROSCOMBE: DETAILS OF CHANCEL SCREEN.

The space above the chancel screen was used as the most conspicuous and convenient place. Accordingly we find the tympanum or partition above the screen used for the exhibition of these tables, and in many instances such partitions were constructed where formerly none existed. The chapel of Wyke Champflower, built in this reign, shows a screen with solid tympanum over bearing on the west side the royal and episcopal arms, the east side being entirely covered with a close writing of selected extracts from the Psalms and Gospels. Others may be mentioned at North Lydbury, Salop; Lockington, Leicestershire; and Ellingham, Hants, the latter being of especial interest, and affording one of those cases in which the original painting of the Doom is covered in this manner.

At Woodbury, Devon, such a partition existed, and was only pulled down in 1848, when it was found that the Commandments had been written on it no fewer than three times.

Parracombe, Devon, is another surviving instance, but here the inscriptions are of Hanoverian date [see fig. 6].

But in addition to these writings, the setting-up of which was not a matter of compulsion (for King James's canons of 1604 were never endorsed by Parliament), paintings were often set up upon the tympana, and these were sometimes of a character near akin to those of the pre-Reformation period. That of the Doom in Gloucester Cathedral is the most notable instance of a post-Reformation painting of this character. It was discovered concealed behind plaster upon the west face of the choir screen in Gloucester Cathedral some sixty years ago. An illustration is given, taken from a monograph by G. Scharf, F.S.A. [fig. 7].

At Bridestowe, Devon, until recent years, the screen was surmounted by a boarded partition exhibiting on its western face the royal arms, with half-length figures of Moses and Aaron, and on its eastern face a well-executed painting of the Resurrection. [See figs. 8 and 9.]

This appears to be an enlarged copy of one of the paintings on the rood-loft at Exeter Cathedral, which are also of post-Reformation date, though Tudor.

The Bridestowe painting was put up in Queen Anne's reign. Many other examples of paintings over the screen might be cited. Mitcheldean Church has one of the most complete sets.

Two very large panel paintings of Moses and Aaron may be seen at Washfield, Devon. They were formerly over the screen, but now are hanging near the west end of the church. Others remain at Helpringham, Linc., over the screen.

With a very few exceptions, screens of the post-Reformation period did not bear lofts over them. This is only what might be inferred from the Injunction of 1561.

The sole surviving exception is that of Rodney Stoke, Somerset,* an example happily still perfect, and of which two illustrations are given [figs. 10 and 14]. Here we have a distinct attempt to revive the old idea of the pre-Reformation rood-loft, and it is interesting to note that this loft was in use until some time in the Victorian era as a singers' gallery. The church in Stuart times seems to have frankly accepted the Elizabethan order concerning the screens, and, though studious to maintain, or, where necessary, to provide them, and to complete them by extending the partition over (corresponding to the Jewish Temple veil), the loft was omitted. The singers' gallery was generally placed in the west, this becoming its recognised position, though in rare instances (as at Ditcheat) it was located in a transept.†

Their western position for a gallery is found in East Anglia very much earlier than this. That at Worstead Church, Norfolk, dates from 1550. Galleries at the west end of Jacobean date are numerous. There is one at Newdigate, Surrey, dated 1627. That of Kentisbere is very early and of good design. The galleries at Gressenhall, Norfolk, and Piddleton, Dorset, bear date 1635. That of Bishops' Cleeve, near Cheltenham, is one of the finest examples, and was erected about 1640.

It is interesting to observe the perpetuation of the old Gothic forms in the immediate post-Reformation type of screen as exemplified at Lustleigh, Devon—a truly beautiful instance of the adaptation of an old model to meet the exigencies of the reformed rules. There is another charming example at Holbeton, both being celebrated for the richness of their workmanship. The screen at Cannington, near Bridgwater, is also almost certainly post-Reformation, having flat spandrels in lieu of groining. All the above are entirely Gothic in design.

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* Possibly the Jacobean screen at Wimborne was of this character, as mention is made of an organ-loft in connection with it. The gallery at East Brent, Somerset, now at the west end of the church, is said to have been removed from the chancel opening, where it occupied the traditional position of the rood-loft. It was erected in 1635, and exhibits a large rectangular projection or bay in the centre, evidently constructed to take the organ.

† At Portishead the minstrels' gallery was located over the porch. The old musical instruments are preserved, and form a very interesting collection. The illustration shows a hand-organ, large drum, and several wind instruments, sufficient to form a somewhat powerful orchestra [fig. 11].

In the Elizabethan era we begin to observe Renaissance screens, but these were certainly erected in much greater profusion during the two succeeding reigns, when the "Anglican" idea was better consolidated and the church made greater progress and recovery.

The number and fine character of the screens, stalls, and other church fittings erected in the reigns of James I. and Charles I. bear eloquent testimony to the wonderful recovery of the Church and the consolidation of her principles during those reigns after the confusion of Elizabeth's time. Many of these works bear witness to the zeal and munificence of private donors, who, emulating the spirit of more ancient times, gave generously of their wealth and their labour to provide for the orderly equipment and adornment of their houses of worship. Magnificent examples of screenwork, dating from the reigns of James I. and Charles I., are to be found in all parts of England.

Tilney, All Saints, and Passenham, Norfolk, furnish instances in East Anglia; at Trentham, in Staffordshire, is a fine example; whilst the south-west of England is full of them.

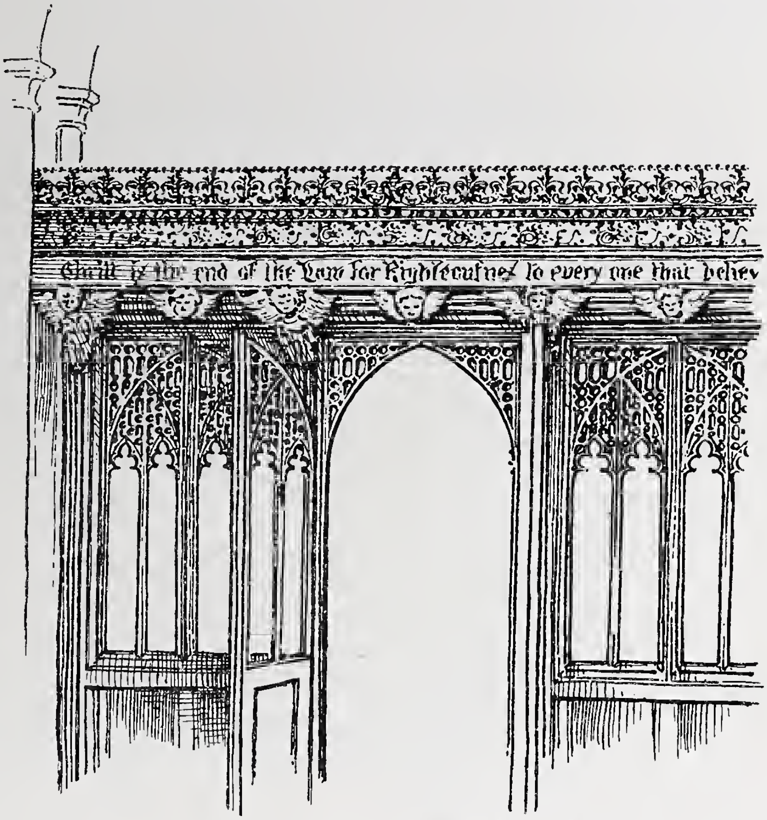
Christ is the end of the Law for Righteousnes to every one that believ

FIG. 13.—LOW HAM: CHANCEL SCREEN, *temp.* CHARLES I.

At Wimborne the screen and organ loft, together with the choir stalls, a magnificent work, date from 1610. It is lamentable to think that modern vandals have swept away the screen. The choir-stalls are returned, and have miserere seats. This instance is noted in the *Ecclesiologist* as being of peculiar interest from a ritual point of view, being erected before the Laudian reaction in favour of Catholic arrangement.

Ditcheat, Somerset, possessed another perfect example of a chancel screen, with holy doors complete and a set of chancel stalls returned at the west end, the whole dating from 1630; but all were ruthlessly demolished not many years ago, and the best portions used by the rector for the decoration of the rectory house.

Perhaps the most splendid instance surviving is the screen at Croscombe, near Wells, of which a portion of the detail is illustrated. This example dates from 1616 [see fig. 12].

In 1639 Sir Paul Pindar, at his own cost, repaired the great choir screen of St. Paul's, adorning the front with statues of the Saxon kings, and the inner side with figures of angels. Other stately and magnificent screens erected in the Laudian era are those of St. John, Leeds

(A.D. 1634), and that which formerly stood in Great St. Mary's, Cambridge, and which was erected under the authority of Cosin, who was then Vice-Chancellor.

The church of St. Giles-in-the-Fields was beautified by the gift of a screen of carved wood to replace the former one. This is described in a petition dated 1640 by the Puritans against Dr. Heywood, the Rector, as being "in the figure of a beautiful gate in which is carved two large pillars and three large statues; on the one side is Paul with his sword, on the other Barnabas with his book, and over them Peter with his keys."

Much of the fine work of this date to be found in the churches of the south, south-west, and other parts of England bears witness to a fidelity to ancient principles and a dislike of Puritanical innovations. The strong affection for the old order of things even brought an endeavour to revive the old "Gothic" style of church building, an art well-nigh forgotten and altogether out of fashion.

The church at Ruscombe, Berks, built in the Laudian period, is a very fine instance of Caroline Gothic, and until late years retained its screen of carved oak, with solid tympanum over for the support of the Tables of the Law and the figures of Moses and Aaron. The screen, alas! went to the builders' yard at the "restoration," and is now lost. The old paintings only recently disappeared.

The church at Low Ham, Somerset, affords a still more perfect example of this tendency. Here we have a complete building, with western tower, nave, aisles, and chancel, all in a very passable imitation of Gothic, the windows having a resemblance to "Decorated" tracery. The chancel is fenced off by a screen of beautiful design and workmanship, but betraying in its execution the curious blunders that would naturally arise from the attempt to reproduce a forgotten style.

The spirit of the builders is shown in the text from Proverbs, which is carved along the cornice on the western face of the screen:—

"My son, fear thou the Lord and the King; and meddle not with them that are given to change."

On the eastern face is another text, part of which is visible in the illustration [fig. 13].

The effort to reproduce the character of the Gothic work extended to the carved detail. This we observe in the enrichments of the cornices at Rodney Stoke [fig. 14], which both in character and in arrangement are adapted from older models. Except for the flatness and superficiality of treatment which differentiates the Jacobean from the Tudor carvings, there is an unmistakable resemblance.

A few extracts may here be introduced in order to show the attitude of the representative clergy and laymen to the question of the screens at this time.

Thus Bishop Montagu, in his visitation articles of 1638, asks: "Is your chancel divided from the nave or body of your church with a partition of stone, boards, wainscot, grates, or otherwise? Wherein is there a decent strong door to open and shut (as occasion serveth), with lock and key to keep out boys, girls, or irreverent men and women?" The same Bishop ordered that in his diocese of Norwich the screen doors should be shut during the Communion, and not opened until it was finished.

The Bishop of Llandaff (A.D. 1634) may also be cited as certifying "that one Williams Newport, Rector of Langua, in Monmouthshire, *hath pulled down the partition between the chancel and the church* and sold part, and disposed the rest to his own use, with some other violences, to the great profanation of that place, for which the Bishop desires leave to bring him into the High Commission" (Archbishop Laud, *Troubles*, p. 533).

"More churches," says a writer in 1638, "have been built and adorned in the reign of King Charles than in the reign of many kings before. . . . The chancel, being divided from the church by grates of wood curiously carved, or of iron, or of brass, into comely works, is not only very graceful, but according to the laws and orders of the building observed by the primitive Christians."

Hooker, the great Elizabethan divine, to whose influence we owe perhaps the reconstitution of the Church, and who, to quote Collier, "baffled the Presbyterian cause so effectually that they have never since been able to appear in the controversy to any purpose," defended rood-screens in the following words :—

"Our churches are places provided that the people may there assemble themselves in due and decent manner according to their several degrees and order. Which thing being common unto us with Jews, we have in this respect our churches divided by certain partitions, though not so many in number as theirs. . . . There being in ours for local distinction between the clergy and the rest . . . *but one partition*, the cause whereof at the first (as it seemeth) was, that as many as were capable of the Holy Mysteries might there assemble themselves, and no other creep in amongst them."

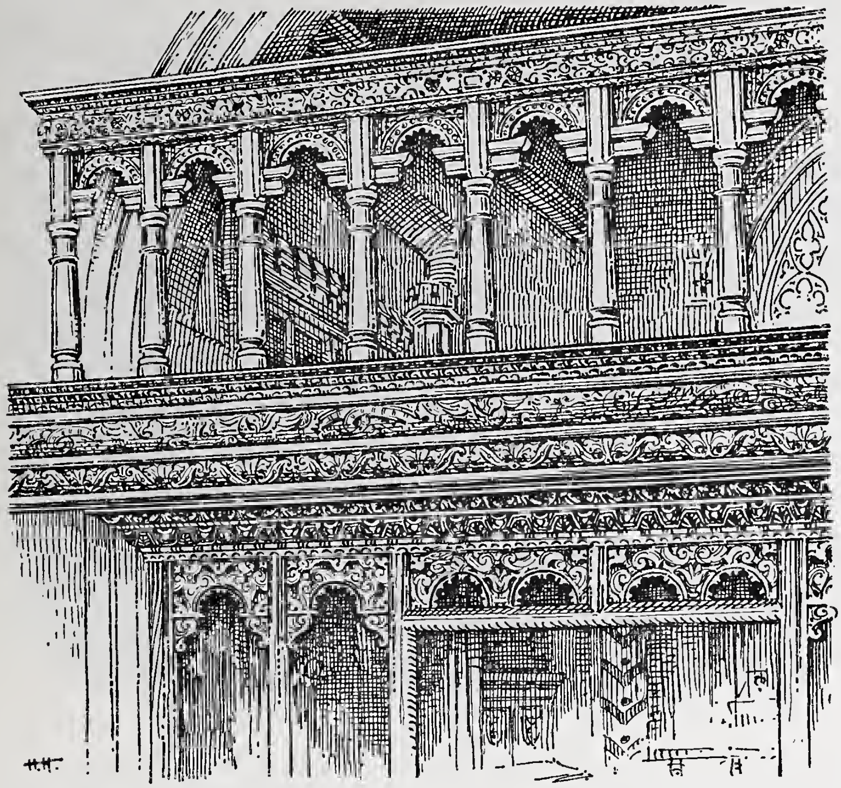

FIG. 14.—RODNEY STOKE : POST-REFORMATION SCREEN AND LOFT.

Dr. Cosin, Bishop of Durham, who erected the grand and massive screen formerly standing in that cathedral, was accused in 1642 by the Puritans of going further in the direction of the Hebrew Temple divisions. The following is quoted from "A Catalogue of Superstitious Innovations" &c. brought into Durham Cathedral &c., p. 14 :—

"Whereas the rubrick saith, chancels shall remain as they have done in times past, our new-fangled Durhamers, and other country priests (following their example) have made *cancellos inter cancellos*, chancels within chancels, that is, an enclosure to divide their altar eastward from the quire, as the Sanctum Sanctorum was separated with curtains from the rest of the Temple. Who ever heard of two chancels in one church, till Durhamers invented it, contrary to the rubrick and the example of all churches in England in former times? So that they have a holy church, a more holy chancel, and at the east end thereof a most holy enclosure where the altar must stand, *into which no man or woman may have access, but priests only.*"

Archbishop Bancroft also defends the distinction between nave and chancel (*circ.* 1578), which he says "doth greatly offend the tender consciences (forsooth) of the purer part of the Reformers. Insomuch as Mr. Gilbey, a chief man in his time among them, doth term the quire *a cage.*" Grindal, who was suspended for his Puritanical leanings, was insistent on the preservation of the screen.

The policy of Laud, who in the teeth of fierce opposition attempted to restore many ancient ceremonies and observances in the Church, inspired the Puritans with horror, and with a dark suspicion of a secret intent to lead the country back to Popery. Thus the way was prepared for the Puritan reaction which came with the Cromwellian era.

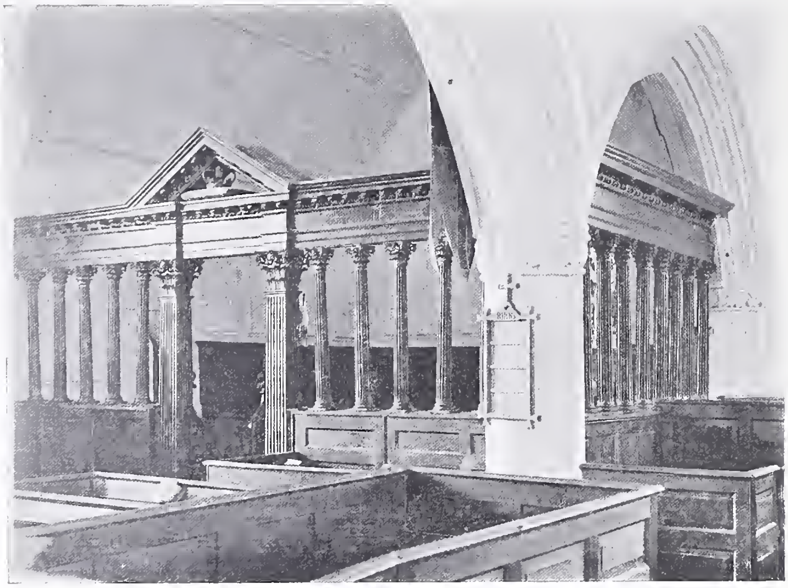

FIG. 15.—CRUWYS MORCHARD.

We should look in vain at the Commonwealth time for signs of respect for ecclesiastical tradition. Berwick-on-Tweed is almost singular in possessing a church of this period; and although the interior arrangement is on Presbyterian lines, strangely enough the space surrounding the Communion Table is enclosed by screenwork.

In 1644 an ordinance, dated May 9, was promulgated for "the taking away of all organs," and this included an injunction that roods, fonts, and organs should not only be taken away, but utterly defaced.

In the zeal of the Puritans for the destruction of the organs, which frequently stood upon the screens, more of the carved woodwork was laid low. Yet the total amount of damage done to the screens at this time seems to have been comparatively small. Much mischief was probably done by the fanatical persons to the paintings of saints, prophets, apostles, &c., which adorned the lower parts of the chancel screens, especially in East Anglia; and it is to this date that the wanton obliteration of their features is probably to be ascribed.

With the restoration of the monarchy under Charles II. the continuity of ancient principles of church building and arrangement is again apparent, and with due allowance for the growth of Italian forms and fashions a fair degree of fidelity is maintained.

Wren, who cannot be accused of any great leanings towards the older forms—witness his original and rejected scheme for St. Paul's—was nevertheless careful in his churches to preserve the customary separation.

At St. Peter's, Cornhill, one of his City churches, may be seen a high chancel screen; and at All Hallows, Thames Street, was another, which has been preserved elsewhere since the church was pulled down. Scarcely one of the churches then erected is without a low partition answering the same purpose.

The chancel screen of Lydiard Tregoze Church is of this date, and differs from earlier examples in one essential feature—namely, the absence of a central doorhead.

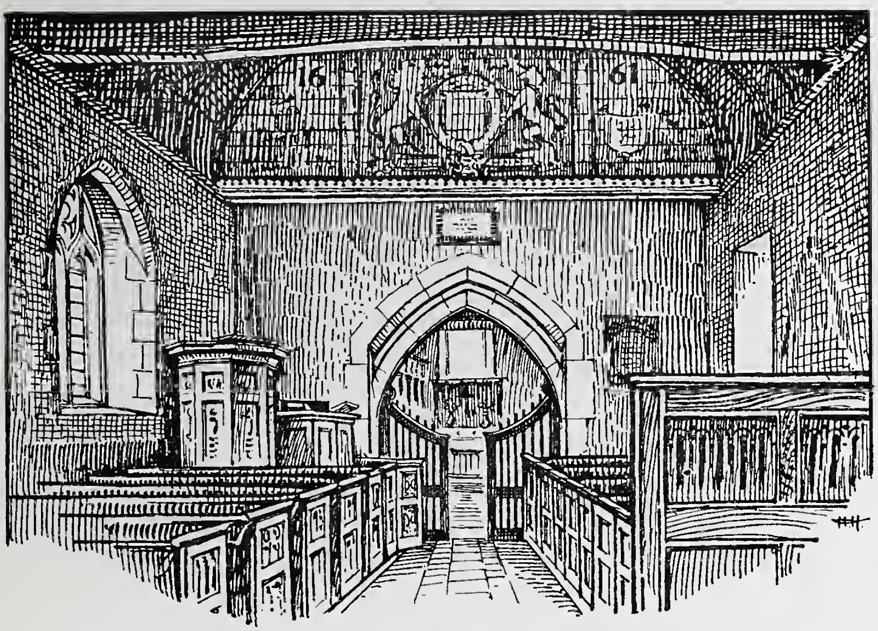

FIG. 16.—WICKHAMFORD CHANCEL GATES.

This period also is not without its apologists for the use of screens. There is a sermon in print by Bishop Beveridge, who defends them, speaking of the "cancelli," or partition of lattice-work, as having been employed in all considerable churches ever since the days of Constantine the Great. He points out the great symbolic importance of the feature.

Towards the commencement of the eighteenth century the tendency to introduce innovations in style and arrangement of churches becomes more marked. Old traditions are weakened, and individual taste and fashion begin more and more to obscure and to dominate ancient principles.

Neo-Paganism in literature and art and a growing scepticism in religious matters caused the study of Christian antiquities to be neglected. There was an increasing apathy in Church matters. Yet the old "High Church" school pursued the even tenor of its way, and vestiges of its quiet undercurrent of thought and practice, and adherence to ancient usages, may be traced in those churches, few in number, which were refurnished at this period on the old lines. At Crowcombe, Somerset, the chancel is enclosed by a screen and parclose of singular beauty, of early Hanoverian date. Another and later example is that of Cruwys Morchard. This is late Georgian, but yet exhibits a very close accordance with older models as regards general arrangement. Stalls line both sides of the chancel, and are returned against the screen to the westward. Both the western screen and the parclose are Corinthian in design, as the illustration shows, and are of refined character. The royal crown reposes upon a cushion beneath the pediment of the central door [fig. 15]

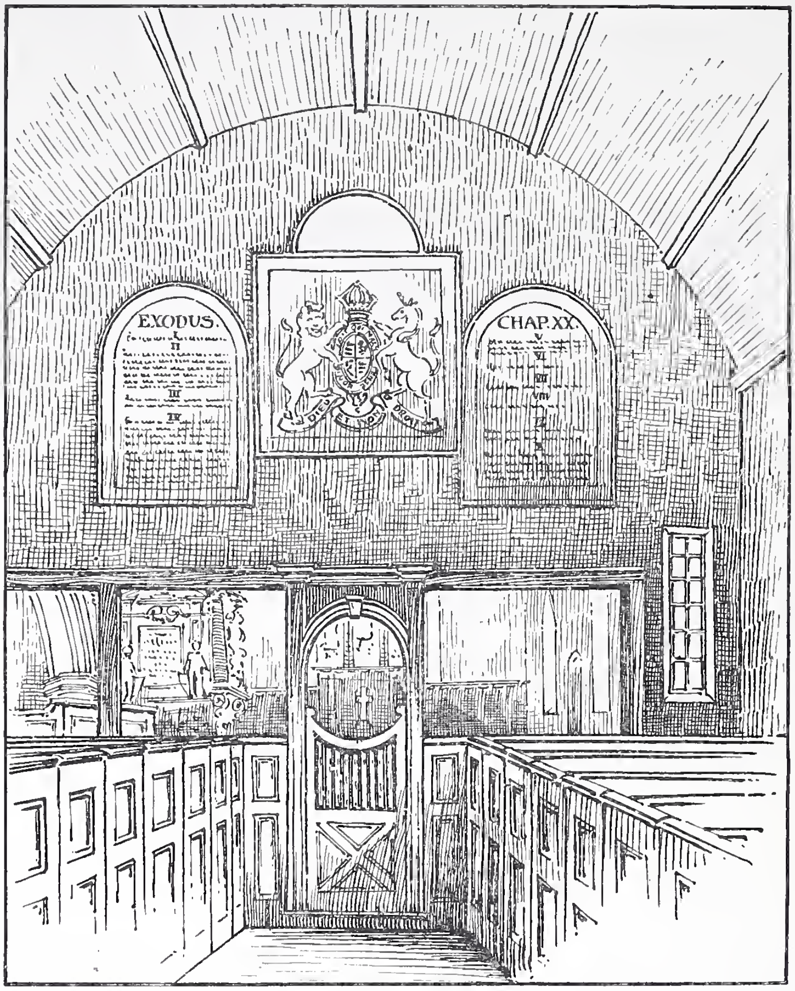

FIG. 17.—MOLLAND BOTREAUX, NORTH DEVON.

Occasionally chancel gates are found to take the place of high screens at this date. These may perhaps be regarded as having a practical rather than a symbolic importance, but may nevertheless be regarded as "screenwork," and as such come within the scope of this Paper. An illustration is given of the gates at Wickhamford, a small Warwickshire church, containing many post-Reformation features of interest [fig. 16].

The latest instance known to the writer which is clearly belonging to the old order, and not a product of the nineteenth-century revival, is in the quaint old unrestored church of Molland Botreaux, North Devon. Here is a quasi-screen formed of two large openings, having in the centre a chancel gate, set in an arched doorway, the whole surmounted by a solid plastered tympanum bearing the Tables of the Law and the royal arms on another panel, with the date 1808 [fig. 17].

The new century brought with it the stirrings of revival, but little knowledge or regard for the time-honoured landmarks of the Church's history. In the new fire of Evangelical zeal the externals of worship were apt to be disregarded if not treated with contempt. Features of high antiquity, almost apostolic in their origin, but whose history and meaning had been forgotten, were set aside indiscriminately as so much mediæval or "popish" rubbish, and fell under the ban of an ignorant prejudice.

The churches were cleared of obstructions and opened up to the fullest extent, so that the congregational idea of worship, "all seeing" and "all hearing," should be achieved. To this end galleries and three-decker pulpits were multiplied, and screens were swept away wholesale.

In Cornwall nearly every screen was sawn down to the level of the transom or cill beneath the lights.

Some lofts remained which had been fitted up as pews. What were known as "flying pews" were of this order, and frequently filled the chancel arch. These were usually occupied by the lord of the manor or leading resident, and being proprietary were left alone, and the screen consequently retained. But when the revival set in, and Church principles were once more recognised, the immediate effect, though favourable in principle to screenwork, did not always tend to the preservation of the remnants of ancient work.

Galleries, flying pews, tympana, and tablets, accretions of post-Reformation days, were cleared away in hundreds by the early restorers, and where old screens remained these were frequently discarded by reason of the expense which would have been incurred in their restoration, for they were generally mutilated and rotten through eighteenth-century neglect.

These earlier restorers, too, went strongly for thirteenth-century models. This style was an easy one to imitate and cheap withal. Simplicity of design being thus in vogue, much of the elaborate later work was suffered to go, and elementary geometric forms were repeated *ad nauseam* in pitch pine or other softer wood.

But with more recent years have come discernment and a more jealous regard for the treasures of antiquity that still remain. This feeling it is desirable to foster yet more strongly, since it is to be feared that there are still much prejudice to be disarmed and ignorance to be enlightened. Of late years the chancel screen has received a gratifying increase of appreciation at the hands of clergy of all shades of opinion, who seem often, in default of actual knowledge of its historic claims, to realise instinctively its fitness and desirability.

It has been the writer's endeavour to show the sustained regard in which the screen has at all times been held by scholarly Churchmen and men of moderate views.

Those who desire to perpetuate in our churches this beautiful feature may certainly appeal with no small confidence to the verdict of our ecclesiastical history, which, whether it embody primitive custom or Reformation principles, gives throughout an emphatic and unmistakable sanction to the chancel screen in the English Church.

9, Conduit Street, London, W., 14*th Oct.* 1905.

CHRONICLE.

Sessional Programme 1905–6.

Nov. 6.— 1. President's Opening Address.
Nov. 20.— 2. American Methods of Erecting Buildings. By R. A. Denell (of the White Waring Co.)
Dec. 4.— 3. Business Meeting.
Dec. 18.— 4. Stained Glass. By Alexander Gascoyne and A. J. Dix.
Jan. 8, 1906.— 5. Business Meeting.
Jan. 22.— 6. Metalwork. By John M. Swan, R.A., Montague Fordham, and Walter Gilbert.
Award of Prizes and Studentships.
Feb. 5.— 7. President's Address to Students. Presentation of Prizes.
Feb. 19.— 8. Furniture. By E. Guy Dawber [*F.*]
Mar. 5.— 9. Business Meeting: Election of Royal Gold Medallist.
Mar. 19.—10. Paper [subject to be announced later].
Apr. 2.—11. Wood-carving. By W. Aumonier and A. W. Martyn.
Apr. 23.—12. Plasterwork. By G. P. Bankart and Lawrence A. Turner.
May 7.—13. Annual General Meeting.
May 21.—14. London Traffic Commission Report. By Paul Waterhouse, M.A. [*F.*]
June 11.—15. Business: Annual Elections.
June 25.—16. Presentation of Royal Gold Medal.

July 16 to 21. Seventh International Congress of Architects, London.

The Architects' Benevolent Society.

In response to the special appeal made on behalf of the Architects' Benevolent Society by the President (Mr. John Belcher, A.R.A.), Mr. Walter Emden has offered to contribute £50, provided nine other gentlemen will give the same amount. The president and council of the Society will be glad to receive the names of gentlemen willing to support Mr. Emden's generous offer, as the Society is urgently in need of help.

The Architectural Association.

Mr. Guy Dawber, in his Presidential Address to the Architectural Association on the 6th inst., was able to give an account of its present position and work that is exceedingly gratifying and encouraging both to the Association and to its friends. The surprising rapidity with which the building debt is being wiped off calls for special congratulation. The net cost to the Association of its new premises amounted, roundly, to £10,240. When it entered into possession last May twelvemonth quite half this sum was to seek, and the prospect seemed a very likely one that the Association would be saddled with debt for many years to come. In less than eighteen months, however, four-fifths of the sum have been subscribed, the debt reduced to a thousand pounds, and its total extinction may be confidently looked for at no very distant date. The handsome and unexpected offer of a thousand pounds conditionally on the balance being subscribed last Session of course gave a stimulus to the flow of subscriptions, and largely contributed to the present happy condition of things. The rest of the money was not all forthcoming, but the beneficent donor gracefully waived the condition and presented the thousand pounds as a free gift. Mr. Guy Dawber made the interesting announcement in his Address that this generous friend of the Association was Mrs. Arthur Cates, who thus perpetuates munificently the benefactions of her late husband, to whom both the Institute and the Association are so deeply indebted. Mr. Guy Dawber refers with pride to the energy and perseverance of members which have won such an enviable record for the Association, and it speaks much for the *esprit de corps* of the profession that has contributed so substantially to the achievement. Members are referred to the Address itself for the President's report on the educational schemes upon which the Association has embarked under such happy auspices and with such hopeful prospects.

Architectural Education.

A curriculum on the lines of that suggested by the Board of Architectural Education has been adopted at King's College, London, under the direction of Professor R. Elsey Smith. Students who have attended the two years' course and have received the College first-class certificate are to be exempted from the Institute Intermediate Examination.

At the Leicester Municipal Technical and Art School a course of instruction in architecture has been arranged with the Leicester and Leicestershire Society of Architects in accordance with the syllabus proposed by the Board of Architectural Education. The Council of the Leicester Society recommend all those intending to take up the profession of architecture to pass through the two years' preliminary course at the School. The student, previous to entering the course, will be required to show such qualification as would enable him to pass, or obtain exemption from, the Institute Preliminary Examination.

Obituary.—The death is announced of Conte Giuseppe Sacconi, Member of the Superior Council of Fine Arts, Rome, Hon. Corresponding Member of the Institute, elected in 1887.

THE INSTITUTE FELLOWSHIP.

To the Editor, Journal R.I.B.A.,—

Sir,—After 31st December 1906 no architect can be elected a Fellow of the Institute but from the class of Associates unless, by special proposal of the Council, for unusual merit, and the number of such cases must of necessity be limited.

The above fact is not, I venture to think, sufficiently widely known or appreciated, and I would ask our Council, the Allied Societies, and the professional Press to call the attention of architects in some special way to it.

In the course of my duties to an important concern, having some 250 branches scattered all over England and Wales, I travel to very many towns therein, and see a vast quantity of good architectural work being carried out. On inquiry I find that the architects do not, as a rule, belong to our Institute, and this is a grave reflection on them, and also, in my opinion, on the Institute and its Allied Societies.

One cause I fancy may be—and I say it with some trepidation—the professional jealousy which seems to exist in the provinces, and a somewhat sad exhibition of which has more than once recently been shown when men found duly qualified by our Council have been violently opposed, and sometimes rejected, at elections. I venture to ask if such a policy can possibly be otherwise than harmful to the Institute. For I believe that dozens of good men and true are thus prevented from presenting themselves. There are hundreds of men in busy practice, of fair age, who cannot possibly work up for the Examinations, and to keep such out of the corporate body is little short of a crime. These men, if they are eligible under the Charter, have an absolute *right* to election, and I do seriously ask that they come forward, and, further, that when they do, and are duly presented by the Council we elect for the purpose, no captious opposition be offered. The Secretary's letter published on p. 519 of the Journal for the 10th June 1905 is so clear and convincing that no words of mine are needed to show what is desired. The Institute in General Meeting has clearly laid that down: Every reputable practising architect doing good work is invited to come up for the Fellowship if he is eligible under the Charter. Better far, Sir, is it that we should admit one or two men who ought—some may argue—to become Associates than that, by an ill-judged opposition, we should scare away dozens, and perhaps hundreds, to whom no reasonable opposition could possibly be offered.

May I also suggest a further difficulty? Many men to whom I have talked on the matter point out that they do not know three Fellows who can personally vouch for them and their buildings. Here our Allied Societies could do a really good work. They could make the necessary inquiries and then provide the requisite nomination. I would even dare to suggest the appointment of a special committee of our Council to deal with such cases if necessary. It might easily be that when in a district the work of an aspirant could be visited by a Fellow whose word we could all rely on, and who might at the same time learn something of the candidate's reputation, which is no less important.

My zeal for the welfare of the Institute—and I hope that cannot be doubted—must be my excuse for this letter. As I have said, I enjoy somewhat unusual opportunities of knowing the men and seeing the good work that is done over a large part of the country. And I feel our Fellowship numbers might and could be nearly doubled if the requisite steps were taken. Such a strengthening would do much for the public, the Institute, and the art we all—no matter how humbly—follow and love.—Yours faithfully,

C. H. Brodie.

REVIEWS.

GREEK ART.

A Grammar of Greek Art. By Percy Gardner, Litt.D., Professor of Classical Archæology in the University of Oxford. [London: Macmillan & Co. 1905.]

Greek art received its distinguishing characteristics from the three peoples who at various times occupied portions of the country that we now know as Greece—the gloomy and superstitious Pelasgian, the stern and masterful Dorian, the volatile and artistic Ionian. All of the three contributed their quota toward the making of the civilisation and art that we term Greek—not in all places, or at all times, in equal degree, but each preponderating in some one part with a very slight intermixture from the others.

The isolation of the three was, in great measure, a result of the physical configuration of the land (with mountain-chains separating it into valleys, each having its dominant city) that tended to produce that spirit of fierce emulation which, fed by the impassioned songs of local poets and the plastic creations of local sculptors, at length broke-out in the hatred and the futile series of silly wars that resulted in placing all of them under the rule of Philip, and finally of the Romans.

As affecting and modifying the work of all three in the culminating period, we trace the Veneration of ancestors, the feeling for Harmony, the desire for Æsthetic effect. There was not much originality of design in the architectural and other details which were used by the various Grecian peoples. Almost every ornament that they used can be traced to an earlier source. They were great borrowers; but their borrowings were worked-up into new combinations with such refinement, and were welded-together so perfectly, that in art we may condone their borrowing in consideration of the good use they made of the borrowed property. The first of the above influences caused the reproduction, in marble, of forms that had been developed in wood; and led to the adoption of the canonical details of the Dorian entablature. The second produced that consistency of character, of each part in its relation to every other part and to the whole, which governs the delicate differences that distinguish the various details of their "orders" of architecture. The third—desire to produce an immediate effect on the beholder, without regard to the truth of the means employed (*i.e.* their devotion to appearance rather than to fact)—led to the so-called "optical corrections", some of which have been investigated by Penrose and others.

In the refinement of the taste, for advanced students, I know of no study more helpful than that of Greek art. The simplicity, the breadth, and the perfect consistency (resulting from the elimination of discordant details, which produces what is emphatically termed STYLE), that are found in this are combined in no other human work, great as such other work may be in other necessary qualities; and all should endeavour to realise the causes of the perfection which is so tantalising, by both book and demonstration—the written word conserving, for other times and students, that which in the *viva voce* may have been missed—and hence the value of a Grammar which will analyse the principles, show their results, and improve our present-day taste, that we may use the means by which these supreme artists achieved their pre-eminence.

Such a work has just been published by a member of a gifted family, well-known in connection with Greek archæology and art, whose excellent work on the "Sculptured Tombs of Hellas" is the best British book on the subject. This present book is a small closely printed volume of 264 pages, divided into sections on Architecture, Dress, Sculpture, Painting, Vase-painting, and Coins, with a too brief Index.

The author's remarks, on the interaction of mural painting with vase-painting, and of each of these with sculpture, are searching and suggestive; as also those on the connection of myth and history with the storiation introduced in each method of artistic expression. The other chapters are so admirable, that it is a matter for regret that so small a portion (13 pages out of 246) is devoted to our art of Architecture; and the hope may be expressed that this, the most important branch, may be treated in a commensurate manner in the next edition. HUGH STANNUS.

SHROPSHIRE CHURCHES.

An Architectural Account of the Churches of Shropshire. By the Rev. D. H. S. Cranage, illustrated with permanent plates, reproduced from photographs by Martin J. Harding, with ground plans of the most important Churches, drawn by W. Arthur Webb, Wellington, Shropshire. [*Hobson & Co.*, 1905.]

Mr. Cranage and his coadjutors, Messrs. Harding and Webb [*A.*], are making good progress with their illustrated survey of the Shropshire parish churches. In their present instalment, Part 7, they deal with the hundreds of Chirbury and Bradford (South), and anticipate that the addition of three more parts will complete the whole of their projected work.

This particular volume does not include any very remarkable churches; hardly any, perhaps, of those described here are likely to arouse much interest in others besides Salopians; but a great deal of the special value of the work lies in its forming such a complete record of all ecclesiastical buildings, whether obviously attractive or striking, or the reverse. The value of a survey carried out on such principles must continually increase with the lapse of time, and when the book is brought to a conclusion both the writer and the draughtsman will have the satisfaction of having accomplished a really useful work.

A. S. FLOWER

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